

## Model list

Item Name	Model Number	Specifications
Basic main units	FBs-10MA□◇△ - ◎	6 points 24VDC digital input (4 points total 5KHz), 4 points relay output or 10KHz transistor output, 1 RS232 or USB port (expandable up to 3), I/O is not expandable
	FBs-14MA□◇△ - ◎	8 points 24VDC digital input (4 points total 5KHz), 6 points relay output or transistor output (4 points 10KHz), 1 RS232 or USB port (expandable up to 3), I/O is not expandable
	FBs-20MA□◇△ - ◎	12 points 24VDC digital input (4 points total 5KHz), 8 points relay output or transistor output (4 points 10KHz), 1 RS232 or USB port (expandable up to 3)
	FBs-24MA□◇△ - ◎	14 points 24VDC digital input (4 points total 5KHz), 10 points relay output or transistor output (4 points 10KHz), 1 RS232 or USB port (expandable up to 3)
	FBs-32MA□◇△ - ◎	20 points 24VDC digital input (4 points total 5KHz), 12 points relay output or transistor output (4 points 10KHz), 1 RS232 or USB port (expandable up to 3)
	FBs-40MA□◇△ - ◎	24 points 24VDC digital input (4 points total 5KHz), 16 points relay output or transistor output (4 points 10KHz), 1 RS232 or USB port (expandable up to 3)
	FBs-60MA□◇△ - ◎	36 points 24VDC digital input (4 points total 5KHz), 24 points relay output or transistor output (4 points 10KHz), 1 RS232 or USB port (expandable up to 3)
Advanced main units	FBs-10MC□◇△ - ◎ - XY	6 points 24VDC digital input (2 points 200KHz, 2 points 20KHz, 2 points total 5KHz), 4 points relay or 200KHz transistor output, 1 RS232 or USB port (expandable up to 5), built-in RTC, I/O is not expandable
	FBs-14MC□◇△ - ◎ - XY	8 points 24VDC digital input (2 points 200KHz, 2 points 20KHz, 4 points total 5KHz), 6 points relay output or transistor output (4 points 200KHz, 2 points 20KHz), 1 RS232 or USB port (expandable up to 5), built-in RTC, I/O is not expandable
	FBs-20MC□◇△ - ◎ - XY	12 points 24VDC digital input (2 points 200KHz, 4 points 20KHz, 6 points total 5KHz), 8 points relay output or transistor output (4 points 200KHz, 4 points 20KHz), 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
	FBs-24MC□◇△ - ◎ - XY	14 points 24VDC digital input (2 points 200KHz, 6 points 20KHz, 6 points total 5KHz), 10 points relay output or transistor output (4 points 200KHz, 4 points 20KHz), 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
	FBs-32MC□◇△ - ◎ - XY	20 points 24VDC digital input (2 points 200KHz, 6 points 20KHz, 8 points total 5KHz), 12 points relay output or transistor output (4 points 200KHz, 4 points 20KHz), 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
	FBs-40MC□◇△ - ◎ - XY	24 points 24VDC digital input (2 points 200KHz, 6 points 20KHz, 8 points total 5KHz), 16 points relay output or transistor output (4 points 200KHz, 4 points 20KHz), 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
	FBs-60MC□◇△ - ◎ - XY	36 points 24VDC digital input (2 points 200KHz, 6 points 20KHz, 8 points total 5KHz), 24 points relay output or transistor output (4 points 200KHz, 4 points 20KHz), 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
NC positioning main units	FBs-20MN□◇△ - ◎	2 points 920KHz 5VDC digital differential input, 10 points 24VDC digital input (4 points 20KHz, 6 points total 5KHz), 2 points 920KHz 5VDC differential output, 6 points relay output or 20KHz transistor output, 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
	FBs-32MN□◇△ - ◎	4 points 920KHz 5VDC digital differential input, 16 points 24VDC digital input (4 points 20KHz, 8 points total 5KHz), 4 points 920KHz 5VDC digital differential output, 8 points relay output or transistor output (4 points 20KHz, 4 points low-speed), 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
	FBs-44MN□◇△ - ◎	8 points 920KHz 5VDC digital differential input, 20 points 24VDC digital input (8 points total 5KHz), 8 points 920KHz 5VDC digital differential output, 8 points relay or low-speed transistor output, 1 RS232 or USB port (expandable up to 5), built-in RTC, detachable terminal block
Expansion power supply	FBsS-EPOW-◎	Power supply for expansion module, with single 5VDC and dual 24VDC voltage output and up to 20VA capacity
Digital I/O expansion units	FBs-24EAP□◇ - ◎	14 points 24VDC digital input, 10 points relay or transistor output, built-in power supply
	FBs-40EAP□◇ - ◎	24 points 24VDC digital input, 16 points relay or transistor output, built-in power supply
	FBs-60EAP□◇ - ◎	36 points 24VDC digital input, 24 points relay or transistor output, built-in power supply
Digital I/O expansion modules	FBs-8EA□◇	4 points 24VDC digital input, 4 points relay or transistor output
	FBs-8EX	8 points 24VDC digital input
	FBs-8EY□◇	8 points relay or transistor output
	FBs-16EA□◇	8 points 24VDC digital input, 8 points relay or transistor output
	FBs-16EY□◇	16 points relay or transistor output
	FBs-20EX	20 points 24VDC digital input
	FBs-24EA□◇	14 points 24VDC digital input, 10 points relay or transistor output
	FBs-40EA□◇	24 points 24VDC digital input, 16 points relay or transistor output
High-density DI/O modules	FBs-24EX	24 points high-density 24VDC digital input, 30 pins header with latch
	FBs-24EYT	24 points high-density transistor output (0.1A max.), 30 pins header with latch

- : Default – Relay output · T – Transistor output
- ◇ : Default – Sink (NPN) · J – Source (PNP)
- △ : Default – built-in RS232 port · U – built-in USB port
- ◎ : Default – 100~240VAC power supply · D – 24VDC power supply  
D12 – 12VDC power supply
- The DI or DO without frequency specified are low-speed

- XY : (optional), The expanding 200KHz inputs(X) and outputs(Y), only for MCT model's X4, X5, X8, X9, X12, X13, and Y4~Y7.  
Example : FBs-24MCT-21, Its means expanding 2 points of 200KHz input(total 4 points) and 1 point of 200 KHz output(total 5 points).  
And FBs-24MCT-02 means only expanding 2 points of 200KHz output(total 6 points).

(Continue)

Item name	Model Number	Specification
Numeric I/O expansion modules	FBs-75G1	1 set (8 digits) 7-segment LED display (or 64 points independent LED) output display module, 16 pins header connector
	FBs-75G2	2 sets (16 digits) 7-segment LED display (or 128 points independent LED) output display module, 16 pins header connector
	FBs-32DG1	8 sets X 4 digits (total 32 digits) Thumbwheel switch(or 128 points independent switch) multiplex input module, 30 pins header connector
Analog expansion modules	FBs-6AD	6 channels, 14-bit analog input module (-10V~0V~+10V or -20mA~0mA~+20mA)
	FBs-2DA	2 channels, 14-bit analog output module (-10V~0V~+10V or -20mA~0mA~+20mA)
	FBs-4DA	4 channels, 14-bit analog output module (-10V~0V~+10V or -20mA~0mA~+20mA)
Analog expansion boards	FBs-B4AD	4 channels, 12-bit analog input board (0V~10V or 0mA~20mA)
	FBs-B2DA	2 channels, 12-bit analog output board (0V~10V or 0mA~20mA)
	FBs-B2A1D	2 channels, 12-bit analog input + 1 channel, 12-bit analog output combo analog board (0V~10V or 0mA~20mA)
Temperature measurement modules	FBs-TC2	2 channels, thermocouple temperature input module with 0.1°C resolution.
	FBs-TC6	6 channels, thermocouple temperature input module with 0.1°C resolution.
	FBs-RTD6	6 channels, RTD temperature input module with 0.1°C resolution.
	FBs-TC16	16 channels thermocouple temperature input module with 0.1°C resolution.
	FBs-RTD16	16 channels RTD temperature input module with 0.1°C resolution.
Communication expansion modules	FBs-CM22	2 ports RS232 (Port3 +Port 4) communication module
	FBs-CM55	2 ports RS485 (Port3 +Port 4) communication module
	FBs-CM25	1 port RS232 (Port3) + 1 port RS485 (port 4) communication module
	FBs-CM25E	1 port RS232 (Port3) + 1 port RS485 (port 4) + Ethernet network interface communication module
	FBs-CM55E	1 port RS485 (Port3) + 1 port RS485 (port 4) + Ethernet network interface communication module
	FBs-CM25C	General purpose RS232↔RS485/RS422 converter with optical isolation
	FBs-CM5R	General purpose RS485 repeater with optical isolation
	FBs-CM5H	General purpose 4 ports RS485 HUB with optical isolation
Communication expansion boards	FBs-CB2	1 port RS232 (Port 2) communication board
	FBs-CB22	2 ports RS232 (Port 1+ Port 2) communication board
	FBs-CB5	1 port RS485 (Port 2) communication board
	FBs-CB55	2 ports RS485 (Port 1+ Port 2) communication board
	FBs-CB25	1 port RS232 (Port 1) + 1 port RS485 (Port 2) communication board
	FBs-CBE	1 port Ethernet communication board
AI/AO/ Temperature combo modules	FBs-4A2D	4 channels, 14-bit analog input (same as 6AD)+2 channels, 14-bit analog output (same as 2DA) combo module
	FBs-2ATC4	2 channels, 14-bit analog input (same as 6AD)+ 4 channels thermocouple temperature input (same as TC6) combo module
	FBs-2ARTD4	2 channels, 14-bit analog input (same as 6AD) + 4 channels RTD temperature input (same as RTD6) combo module
Special modules	FBs-4PT	4 channels, 16-bit potential meter input module (Impedance range: 1K~10K Ω)
	FBs-ATC2	2 channels, auto. tuning temperature control module with 0.1°C resolution
	FBs-1LC	1 channel, load cell control module with 20-bit resolution
	FBs-AXC2	2 axes, motion control module
	FBs-CMGSM	GPRS/GSM wireless communication module
Communication cables	FBs-232P0-9F-150	FBs main unit port 0 RS232 to 9 pins female D-Sub communication cable, length 150cm
	FBs-232P0-9M-400	FBs main unit port 0 RS232 to 9 pins male D-Sub communication cable, length 400cm
	FBs-USBP0-180	FBs main unit port 0 USB communication cable (standard USB A↔ B), length 180cm
Memory Pack programming devices	FBs-PACK	FBs-PLC program memory pack with 20K words program, 20K words register, write protection switch
	FP-08	Handheld programmer for FBs-PLC
	Winproladder	WinProladder Programming software for Windows
16 / 7 Segment LED display boards	DBAN.8(DBAN.8LEDR)	0.8" X 4 of 16-segment display board (with red LED installed)
	DBAN2.3(DBAN2.3LEDR)	2.3" X 4 of 16-segment display board (with red LED installed)
	DB.56(DB.56LEDR)	0.56" X 8 of 7-segment display board (with red LED installed)
	DB.8(DB.8LEDR)	0.8" X 8 of 7-segment display board (with red LED installed)
	DB2.3(DB2.3LEDR)	2.3" X 8 of 7-segment display board (with red LED installed)
	DB4.0(DB4.0LEDR)	4.0" X 4 of 7-segment display board (with red LED installed)
Data Access Panels	FBs-BDAP	Board type Data Access Panel
	FBs-DAP-B(R)	16 x 2 LCD character display, 20 keys keyboard, 24VDC power supply, RS485 communication interface (suffixed R means wireless card read/write module included)
	FBs-DAP-C(R)	16 x 2 LCD character display, 20 keys keyboard, 5VDC power supply, RS485 communication interface (suffixed R means wireless card read/write module included)
RFID Card	CARD-H	Read / write wireless card (for FBs-DAP-BR/CR)
Training kit	FBs-TBOX	46cm x 32 cm x 16cm suitcase, containing FBs-24MCT main unit. FBs-CM25E communication module, 14 simulated input switches, 10 external relay output,

# Model Specifications

## Basic main units (MA)



Spec.			Model							
			FBs-10MA	FBs-10MAT	FBs-14MA	FBs-14MAT	FBs-20MA	FBs-20MAT	FBs-24MA	FBs-24MAT
Digital input	24VDC	Medium low speed (total 5KHz)	4 points							
		Low speed	2 points		4 points		8 points		10 points	
Digital output	Relay	AC/DC(2A)	4 points	—	6 points	—	8 points	—	10 points	—
	Transistor (5 ~ 30VDC)	Medium speed 10KHz (0.5A)	—	4 points	—	4 points	—	4 points	—	4 points
		Low speed (0.5A)	—	—	—	2 points	—	4 points	—	6 points
Comm. port	Built-in		1 port (Port0, USB or RS232)							
	Expandable		2 ports (Port1 ~ 2, RS485 or RS232 or Ethernet)							
		Calendar	option							
		Built-in power supply	POW-14(AC)/DPOW-10(DC)				POW-24(AC)/DPOW-16(DC)			
		Wiring mechanism	7.62 mm terminal block							
		Dimension	Figure 2				Figure 1			



Spec.			Model					
			FBs-32MA	FBs-32MAT	FBs-40MA	FBs-40MAT	FBs-60MA	FBs-60MAT
Digital input	24VDC	Medium low speed (total 5KHz)	4 points					
		Low speed	16 points		20 points		32 points	
Digital output	Relay	AC/DC(2A)	12 points	—	16 points	—	24 points	—
	Transistor (5 ~ 30VDC)	Medium speed 10KHz (0.5A)	—	4 points	—	4 points	—	4 points
		Low speed (0.5A)	—	8 points	—	12 points	—	20 points
Comm. port	Built-in		1 port (Port0, USB or RS232)					
	Expandable		2 ports (Port1 ~ 2, RS485 or RS232 or Ethernet)					
		Calendar	option					
		Built-in power supply	POW-24(AC)/DPOW-16(DC)					
		Wiring mechanism	7.62 mm terminal block					
		Dimension	Figure 1					

## Advanced main units (MC)



\*: Default

Spec.			Model							
			FBs-10MC	FBs-10MCT	FBs-14MC	FBs-14MCT	FBs-20MC	FBs-20MCT	FBs-24MC	FBs-24MCT
Digital input	24VDC	High speed (200KHz)	2*~4 points				2*~6 points		2*~8 points	
		Medium speed (20KHz)	2*~0 points				4*~0 points		6*~0 points	
		Medium low speed (total 5KHz)	2 points		4 points		6 points			
Digital output	Relay	AC/DC(2A)	4 points	—	6 points	—	8 points	—	10 points	—
	Transistor (5 ~ 30VDC)	High speed 200KHz (0.5A)	—	4 points	—	4*~6 points	—	4*~8 points	—	4*~8 points
		Medium speed 20KHz (0.5A)	—	—	—	2*~0 points	—	4*~0 points	—	4*~0 points
		Low speed (0.5A)	—	—	—	—	—	—	—	2 points
Comm. port	Built-in		1 port (Port0, USB or RS232)							
	Expandable		4 ports (Port1 ~ 4, RS485 or RS232 or Ethernet or GSM)							
		Calendar	Built-in							
		Built-in power supply	POW-14(AC)/DPOW-10(DC)				POW-24(AC)/DPOW-16(DC)			
		Wiring mechanism	7.62 mm terminal block				7.62 mm detachable terminal block			
		Dimension	Figure 2				Figure 1			



\*: Default

Spec.			Model					
			FBs-32MC	FBs-32MCT	FBs-40MC	FBs-40MCT	FBs-60MC	FBs-60MCT
Digital input	24VDC	High speed (200KHz)	2*~8 points					
		Medium speed (20KHz)	6*~0 points					
		Medium low speed (total 5KHz)	8 points					
		Low speed	4 points		8 points		20 points	
Digital output	Relay	AC/DC(2A)	12 points	—	16 points	—	24 points	—
	Transistor (5 ~ 30VDC)	High speed 200KHz (0.5A)	—	4*~8 points	—	4*~8 points	—	4*~8 points
		Medium speed 20KHz (0.5A)	—	4*~0 points	—	4*~0 points	—	4*~0 points
		Low speed (0.5A)	—	4 points	—	8 points	—	16 points
Comm. port	Built-in	1 port (Port0, USB or RS232)						
	Expandable	4 ports (Port1 ~ 4, RS485 or RS232, Ethernet or GSM)						
Calendar		Built-in						
Built-in power supply		POW-24(AC)/DPOW-16(DC)						
Wiring mechanism		7.62 mm detachable terminal block						
Dimension		Figure 1						

### NC positioning main units (MN)



Spec.			Model					
			FBs-20MN	FBs-20MNT	FBs-32MN	FBs-32MNT	FBs-44MN	FBs-44MNT
Digital input	5VDC	Ultra high speed (920KHz)	2 points (1 axis)		4 points (2 axes)		8 points (4 axes)	
		Medium speed (20KHz)	4 points		4 points		—	
	24VDC	Medium low speed (total 5KHz)	6 points		8 points			
		Low speed	—		4 points		12 points	
Digital output	Relay	AC/DC(2A)	6 points	—	8 points	—	8 points	—
	5VDC	Differential ultra high speed 920KHz	2 points (1axis)		4 points (2 axes)		8 points (4 axes)	
		Medium speed 20KHz (0.5A)	—	6 points	—	4 points	—	—
		Low speed (0.5A)	—	—	—	4 points	—	8 points
Comm. port	Built-in	1 port (Port0, USB or RS232)						
	Expandable	4 ports (Port1 ~ 4, RS485 or RS232, Ethernet or GSM)						
Calendar		Built-in						
Built-in power supply		POW-24(AC)/DPOW-16(DC)						
Wiring mechanism		7.62 mm detachable terminal block						
Dimension		Figure 1						

### Digital I/O expansion units



Spec.			Model					
			FBs-24EAP	FBs-24EAPT	FBs-40EAP	FBs-40EAPT	FBs-60EAP	FBs-60EAPT
Digital input	24VDC	Low speed	14 points		24 points		36 points	
Digital output	Relay	AC/DC(2A)	10 points	—	16 points	—	24 points	—
	Transistor (5 ~ 30VDC)	Low speed (0.5A)	—	10 points	—	16 points	—	24 points
Built-in power supply		POW-24(AC)/DPOW-16(DC)						
Wiring mechanism		7.62 mm terminal block						
Dimension		Figure 1						

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## Model Specifications

### Power supplies for expansion modules



Spec.		Model	FBs-EPOW	FBs-EPOW-D
Capacity of output power	5VDC Bus power		400mA	400mA
	24VDC Bus power		250mA	165mA
	24VDC Sensor power		250mA	165mA
Max. power consumption			100 ~ 240VAC -15%/+10%, 21W	15VDC/24VDC -15%/+20%, 15W
Wiring mechanism			7.62 mm terminal block	
Dimension			Figure 4	

### Digital I/O expansion modules



Spec.		Model	FBs-8EA	FBs-8EAT	FBs-8EX	FBs-8EY	FBs-8EYT	FBs-16EA	FBs-16EAT	FBs-20EX	
Digital input	24VDC	Low speed	4 points		8 points	—	—	8 points		20 points	
Digital output	Relay	AC/DC(2A)	4 points	—	—	8 points	—	8 points	—	—	
	Transistor (5~30VDC)	Low speed (0.5A)	—	4 points	—	—	8 points	—	8 points	—	
Wiring mechanism			7.62 mm terminal block								
Dimension			Figure 4					Figure 3			



Spec.		Model	FBs-16EY	FBs-16EYT	FBs-24EX	FBs-24EYT	FBs-24EA	FBs-24EAT
Digital input	24VDC	Low speed	—	—	24 points	—	14 points	
Digital output	Relay	AC/DC(2A)	16 points	—	—	—	10 points	—
	Transistor (5~30VDC)	High density Low speed (0.1A)	—	—	—	24 points	—	—
		Low speed (0.5A)	—	16 points	—	—	—	10 points
Wiring mechanism			7.62 mm terminal block		30 pins header with latch		7.62 mm terminal block	
Dimension			Figure 3		Figure 6		Figure 1	



Spec.		Model	FBs-40EA	FBs-40EAT	FBs-60EA	FBs-60EAT
Digital input	24VDC	Low speed	24 points		36 points	
Digital output	Relay	AC/DC(2A)	16 points	—	24 points	—
	Transistor (5~30VDC)	Low speed (0.5A)	—	16 points	—	24 points
Wiring mechanism			7.62 mm terminal block			
Dimension			Figure 1			

## Thumbwheel switch input module



Spec.	Model	FBS-32DGI
Refresh time for input		10mS max.
Input capability		8 words (32 digits/128 individual points)
Input method		1/8 duty multiplexing input scan
Wiring mechanism		30 pins header with latch
Dimension		Figure 6

## 7/16-segment LED display modules



Spec.	Model	FBS-7SG1	FBS-7SG2	
Display mode	Decoding display	4 bits to represent a character. It can display 16 kinds of pre-decoded character including 0 ~ 9, -, H, E, c, t and all blank		
	Non-decoding display	Each segment controlled by 1 individual bit		
Display number of character or points of LED		8 (4*) characters or 64 points individual LED	16 (8*) characters or 128 points individual LED	
Refresh time for display		10mS max.		
LED driving specification	Driving current	40mA /segment		
	Display method	1/8 duty multiplexing display		
	Driving voltage	Low voltage	5VDC (can be 10% up)	
		High voltage	7.5V, 10V, 12.5V selectable (can be 10% up)	
Fine tune of voltage drop	0.6V, 1.2V, 1.8V selectable			
Over voltage driving indication		Each channel has individual Over Voltage (O.V.) driving LED indication		
Isolation method		Transformer (power) and photocouple (signal) isolation		
Power consumption		24VDC -15%/+20%,static consumption is 2VA max., dynamic current is increased according to display.		
Wiring mechanism		16 pins flat cable, 2.54mm header connector		
Dimension		Figure 4		

\* : For 16-segment alphanumeric character

## Analog input (AI) module



Spec.	Model	FBS-6AD	
Input source		Voltage input	Current input
Number of input point		6 points / 14-bit	
Digital input value		-8192 ~ +8191 or 0 ~ 16383	
Input signal range	Bipolar	-10 ~ 10V or -5 ~ 5V	-20 ~ 20mA or -10 ~ 10mA
	Unipolar	0 ~ 10V or 0 ~ 5V	0 ~ 20mA or 0 ~ 10mA
Maximum resolution		0.3mV (5V/16384)	0.61μA (10mA/16384)
Accuracy		±1%	
Conversion time		Conversion once for each scan	
Maximum input signal		±15V	±30mA
Input impedance		63.2KΩ	250Ω
Isolation method		Transformer (power) and photocouple (signal) isolation	
Power consumption		24VDC -15%/+20%, 2VA max.	
Wiring mechanism		7.62 mm terminal block	
Dimension		Figure 4	

## Model Specifications

### Analog output (AO) modules



Spec.	Model	FBs-2DA	FBs-4DA
Number of output point		2 points / 14-bit	4 points / 14-bit
Digital output value		-8192 ~ +8191 or 0 ~ 16383	
Output signal range	Bipolar	Voltage : -10 ~ 10V or -5 ~ 5V , Current : -20 ~ 20mA or -10 ~ 10mA	
	Unipolar	Voltage : 0 ~ 10V or 0 ~ 5V , Current : 0 ~ 20mA or 0 ~ 10mA	
Maximum Resolution		Voltage : 0.3mV (5V/16384) , Current : 0.61μA (10mA/16384)	
Accuracy		±1%	
Conversion time		Conversion once for each scan	
Allowable loading		Voltage : 500Ω ~ 1 MΩ : Current : 0Ω ~ 500Ω	
Isolation method		Transformer (power) and photocouple (signal) isolation	
Power consumption		24VDC -15%/+20%, 2VA max.	
Wiring mechanism		7.62 mm terminal block	
Dimension		Figure 4	

### Temperature measurement modules



Spec.	Model	FBs-TC2	FBs-TC6	FBs-TC16	FBs-RTD6	FBs-RTD16	FBs-NTC6
Number of input points		2 points	6 points	16 points	6 points	16 points	6 points
Sensor type and temperature measurement range		Thermocouple Sensor: 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°C~850°C) Pt1000(-200°C~600°C)		NTC sensor 10 KΩ at 25°C, B optional -20°C ~ 100°C
Temperature compensation		Built-in cold junction compensation			—	—	—
Resolution		0.1°C					
Temperature refresh time		1 or 2 seconds	2 or 4 seconds	3 or 6 seconds	1 or 2 seconds	2 or 4 seconds	2 or 4 seconds
Overall Precision		± (1%+1°C)			± 1%		+/- 1 % of full scale at 25°C
Isolation method		Transformer (power) and photocouple (signal) isolation					
Power consumption		24VDC -15%/+20%,2VA max.					
Wiring mechanism		3.81 mm European terminal block		7.62 mm terminal block			
Dimension		Figure 4		Figure 1	Figure 4	Figure 1	Figure 4

### AI/AO/Temperature combo modules



Spec.	Model	FBs-4A2D	FBs-2ATC4	FBs-2ARTD4
Number of input/output point		4 points AI / 14-bit + 2 points AO / 14-bit	2 points AI / 14-bit + 4 points Temperature (TC)	2 points AI / 14-bit + 4 points Temperature (RTD)
Temperature input specification		—	Same as FBs-TC6	Same as FBs-RTD6
Analog input specification		Same as FBs-6AD	Same as FBs-6AD	Same as FBs-6AD
Analog output specification		Same as FBs-2DA / 4DA	—	—
Power consumption		24VDC -15%/+20%,2VA max.		
Wiring mechanism		7.62 mm terminal block		
Dimension		Figure 4		

## Special modules



Spec. / Model	FBs-4PT	FBs-ATC2	FBs-1LC	FBs-AXC2
Features	4 channels, 16-bit potential meter input module (Impedance range: 1K~10K Ω)	2 channels, auto. tuning temperature control module with 0.1°C resolution	1 channel, load cell module with 20-bit resolution	2 axes, with linear uncircular interpolation motion control module
Wiring mechanism	7.62 mm terminal block			
Dimension	Figure 4			

## Communication modules (CM)



Spec. / Model	FBs-CM22	FBs-CM55	FBs-CM25	FBs-CM25E	FBs-CM55E
Features	2 RS232 ports (Port3+Port4) with TX, RX indicators	2 RS485 ports (Port3+Port4) with TX, RX indicators	1 RS232 (Port3) + 1 RS485 (Port4) with TX, RX indicators	1 RS232 (Port3) + 1 RS485 (Port4) with Ethernet interface and RUN, LINK, TX, RX indicators	2 RS485 ports (Port3+Port4) with Ethernet interface and RUN, LINK, TX, RX indicators
Wiring mechanism	D-SuB female	3.81 mm European terminal block	D-SuB female 3.81 mm European terminal block		3.81 mm European terminal block
Dimension	Figure 5				



Spec. / Model	FBs-CM25C	FBs-CM5R	FBs-CM5H	FBs-CMGSM
Features	General purpose optical isolation RS232↔RS485/RS422 converter, with RX indicator	General purpose optical isolation RS485 repeater, with RX indicator	General purpose optical isolation 4 ports RS485 Hub, with ACT, COLLISION indicators	GPRS/GSM wireless communication module
Wiring mechanism	D-SuB female 3.81 mm European terminal block	3.81 mm European terminal block	7.62 mm terminal block	—
Dimension	Figure 5	Figure 5	Figure 4	Figure 5

## Communication boards (CB)



Spec. / Model	FBs-CB2	FBs-CB22	FBs-CB5	FBs-CB55	FBs-CB25	FBs-CBE
Features	1 port RS232 (Port 2) with TX, RX indicators	2 ports RS232 (Port 1+ Port 2) with TX, RX indicators	1 port RS485 (Port 2) with TX, RX indicators	2 ports RS485 (Port 1+ Port 2) with TX, RX indicators	1 port RS232 (Port 1) + 1 port RS485 (Port 2) with RX & TX indicators	1 port Ethernet with LINK, RX & TX indicators
Wiring mechanism	D-SuB female		3.81 mm European terminal block		D-SuB female 3.81 mm European terminal block	RJ-45

## Analog I/O boards



Spec. / Model	FBs-B2DA	FBs-B4AD	FBs-B2A1D
Features	2 channels, 12-bit analog output board (0~10V or 0~20mA)	4 channels, 12-bit analog input board (0~10V or 0~20mA)	2 channels, 12-bit analog input + 1 channel, 12-bit analog output combo analog board (0~10V or 0~20mA)
Wiring mechanism	3.81 mm European terminal block		

## Model Specifications

### Memory pack



Spec.	Model	FBS-PACK
Memory		1M bits FLASH ROM
Memory capacity		20K words program + 20K words data
Write protection		DIP switch ON/OFF protection

### PWMDA



Spec.	Model	PWMDA
Output range		DC 0~10V
Output value		0~1000
Resolution		10mV(10V/1000)
Output impedance		1KΩ
Min. load(≥10V)		5.2KΩ
D/A conversion time		<50mS

### RFID card



Spec.	Model	CARD-H
Applicable DAP		FBS-DAP-BR/CR
Operated frequency		13.56MHz
Memory		64-bit with Cyclic Redundancy Check (CRC) on data
Working temperature		-25°C ~ 50°C (ISO7810)
Power source		Powered by RF
Receivable distance		10cm - 15cm
Writable times		at least 10000 times
Dimension(mm)		86 X 54 X 0.76
Weight		5g

### FP-08 handheld programming panel

Easy to use and portable, with program editing, copying, status monitoring and debugging functions, most suitable for field maintenance.

Change working mode only by a single keystroke, without having tedious exit process from current working mode.



Spec.	Model	FP-08
Power consumption		5V/100mA
Keyboard		48 silicon rubber keys
Display		16-character × 2, 5×7dot matrix LCD display, with LED backlighting
Communication port		RS232 serial communication port
Dimension		Figure 7

### Data Access Panel



Spec.	Model	FBS-DAP-B(R)	FBS-DAP-C(R)	FBS-BDAP
Display		16-character × 2, 5×7dot matrix LCD display, with LED backlighting		128 segments fixed-pattern LCD display
Key pads		20 (membrane)		6 (rubber)
Power consumption		24V,41mA (48mA) max.	5V,100mA (120mA) max.	5V,100mA max.
Communication Interface	Electric	RS485	RS232	Port1, CMOS
	Mechanism	5-pin European detachable terminal block	D-sub 9 pins male connector	—
	Number of linked station	Max. 16 stations	1	—
General features		Timer, counter, register, relay, access of contact in PLC		
Special features		Alarm, information display, user definable special quick keys		Station No. setup, Run/Stop Control Calendar* display and setup
Card access feature		Available only in -BR/-CR models, with maximum distance of 10 ~ 15 cm		—
Dimension		Figure 8		

\* The PLC main unit must be of calendar built-in type

Accessories



Spec. / Model	LED.56R	LED.8R	LED2.3R	LED4.0R
Features	0.56" high-brightness, red color 7-segment LED display	0.8" high-brightness, red color 7-segment LED display	2.3" high-brightness, red color 7-segment LED display	4.0" high-brightness, red color 7-segment LED display



Spec. / Model	LEDAN.8R	LEDAN2.3R	DB.56 (DB.56LEDR)	DB.8 (DB.8LEDR)
Features	0.8" high-brightness, red color 16-segment LED display	2.3" high-brightness, red color 16-segment LED display	0.56" 7-segment 8 digits LED display PCB (DB.56LEDR with LED installed)	0.8" 7-segment 8 digits LED display PCB (DB.8LEDR with LED installed)



Spec. / Model	DB2.3 (DB2.3LEDR)	DB4.0 (DB4.0LEDR)	DBAN.8 (DBAN.8LEDR)	DBAN2.3 (DBAN2.3LEDR)
Features	2.3" 7-segment 8 digits LED display PCB (DB2.3LEDR with LED installed)	4.0" 7-segment 4 digits LED display PCB (DB4.0LEDR with LED installed)	0.8" 16-segment 4 digits LED display PCB (DBAN.8LEDR with LED installed)	2.3" 16-segment 4 digits LED display PCB (DBAN2.3LEDR with LED installed)



Spec. / Model	FBs-232P0-9F-150	FBs-232P0-9M-400	FBs-USBP0-180	HD30-22AWG-200
Features	Dedicated communication cable for FBs main unit port 0 (RS232) to 9-pin D-sub female connector, length 150cm	Dedicated communication cable for FBs main unit port 0 (RS232) to 9-pin D-sub male connector, length 400cm	Communication cable for FBs main unit port 0 (USB) (commercial USB A↔B cable), length 180cm	22AWG I/O cable with 30pins socket, length 200cm (for FBs-24EX, 24EYT and 32DGI)

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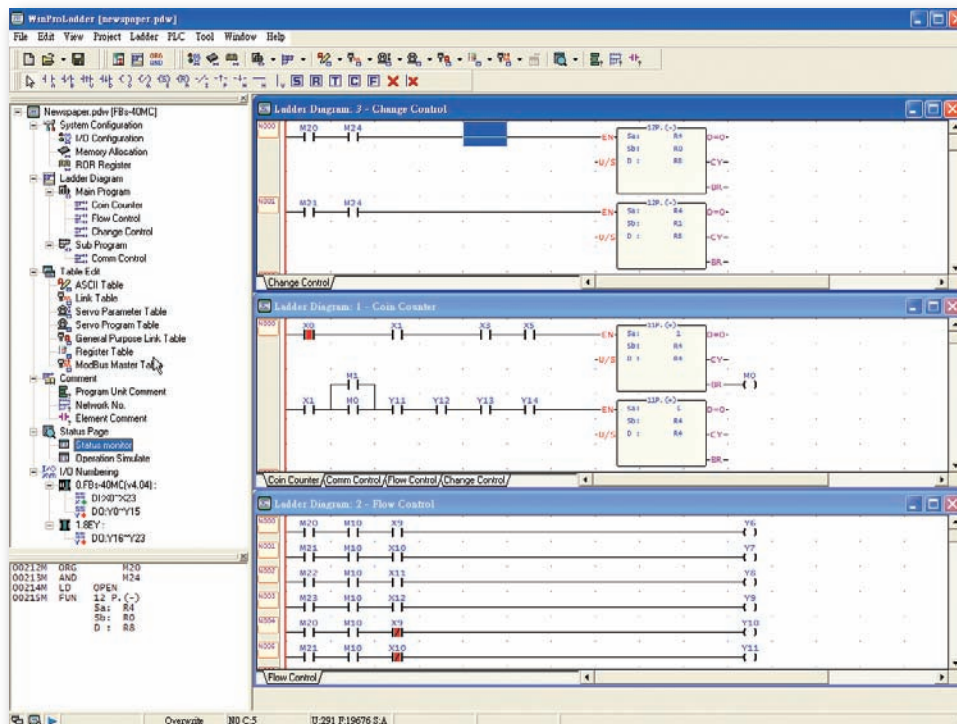
Alcalde #1822 Col. Miraflores C.P. 44270 Guadalajara, Jal. Mexico  
 MX 01 (33) 3854-5975 y 3823-4349 USA 001 (619)-884-94-93 (San Diego, CA. Office)

# Program Development Software

## WinProLadder programming software

### General Features

- Windows based application program following the standard conventions of a windows environment for ease of learning and operation regardless of whether the user is a beginner or frequent user.
- Application environment for project development is via a hierarchical tree. All the elements of the project can be activated by directly clicking the mouse button on the tree object providing comprehensive access and views of the working project.
- Easy entry methods which incorporate both the keyboard and mouse as entry devices. No matter whether on site or in an office environment the software can be operated with ease and efficiency.
- Provides various types of connections to the PLC via a PC. Connections include serial, USB, Ethernet / Internet and Modem. For every different connection WinProLadder provides a session name to associate the setting of the communication parameters, such as port no., baud rate, IP address, phone number, etc.



- **On-Line, Run-Time program editing**
- **Program testing**
- **Program documentation**
- **Project oriented program**
- **Ladder program editing screen**
- **Status monitor and control display window**
- **Mnemonic ladder instruction display window**
- **Ladder diagram with comments**
- **Element comment editing**



# Training Box

## Features:

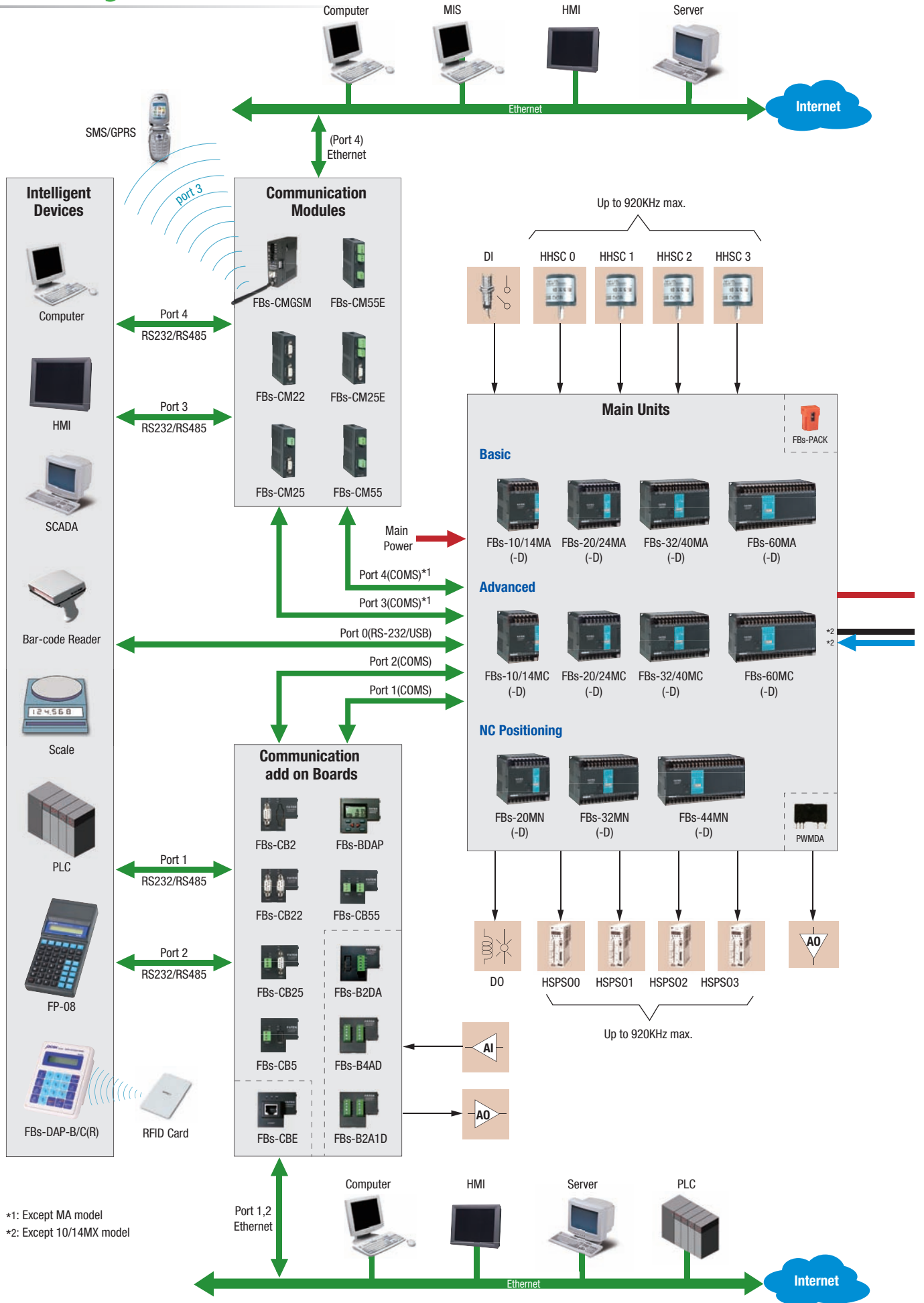
- It contains the basic items required by PLC digital I/O training, such as the FBs-24MCT advanced main unit, the FBs-CM25E Ethernet module, digital input socket, simulated switches, and digital output socket.
- The built-in RS232, RS485 and the Ethernet three ports (can be expanded to five with communication boards) not only enable the teacher's computer to connect with the training kits of all students to conduct networking on-line teaching such as loading, monitoring, modifying, and storing, but also can be used in advanced course such as computer connection, intelligent ASCII peripherals as well.



- A special designed software "WinProladder teaching assistant" can let instructor download or upload ladder program to or from the PLC of the whole class or individual through computer.
- PLC output is isolated by the Relay with socket and fuse and then output to terminal. These isolations can prevent PLC from damaging caused by incorrect wiring and easy for repair and replacement.

Spec.	Model	FBs-TBOX	
Case		Aluminum suitcase. Dimension is 46x32x16cm. Top cover and box body can be separated.	
Power supply		100~240VAC / 2A fuse / power switch with indicator	
PLC		FBs-24MCT(transistor output)+FBs-CM25E(Ethernet communication module)	
Programming tool	Programmer	FP-08 handheld programming panel, can develop program, monitor (optional)	
	Winproladder Programming Software	Instructor site: WinProladder with 'teaching assistant' utility	
		Student site: WinProladder	
Communication interface	Built-in	Port0	USB B type connector
		Port1	RS232 or RS485 selectable, directly mounted on FBs-24MCT main unit
	Port2		
	Communication board(CB) (optional)	Port3	RS232, standard DB-9F connector
		Port4	RS485, 3-pin European terminal block
		(Port4)	Ethernet 10 Base T, IEEE 802.3 standard. Use port4 to interface PLC main unit
FBs-CM25E			
Input interface		Banana terminal and simulation switch with automatic and manual reset functions	
Output interface		Banana terminal, 10 points. Transistor output(Y0~Y9). All outputs buffer with discrete relay before come to terminal. Y0 and Y1 also provide a direct output terminal for high-speed pulse output (HSPSO) application.	
Expansion module (optional)		Secured by DIN Rail, 12.5cm wide slot, can accommodate three 4cm thin modules or other modules with equivalent width	
Application peripheral	Display module	4 digits 7-segment display module , attached with BCD decoding circuit	
	Thumbwheel switch	4 digits BCD thumbwheel switch module	
	Keyboard module	4 x 4 matrix keyboard module ( Wiring coordinate with convenient instruction )	
	Encoder	Power supply 24VDC 、 200P/R 、 open collector 、 A/B phase	
	Stepping motor	Pules/DIR control 、 200P/R	
	LED display	10 of 10mmØ high-brightness LED (in red, yellow, and green), driven individually by Y0 to Y9	
Number of linked stations		Maximum 254 stations (1 station for instructor, 253 stations for student)	

# System Configuration



\*1: Except MA model  
\*2: Except 10/14MX model

