

# FBs-6DA

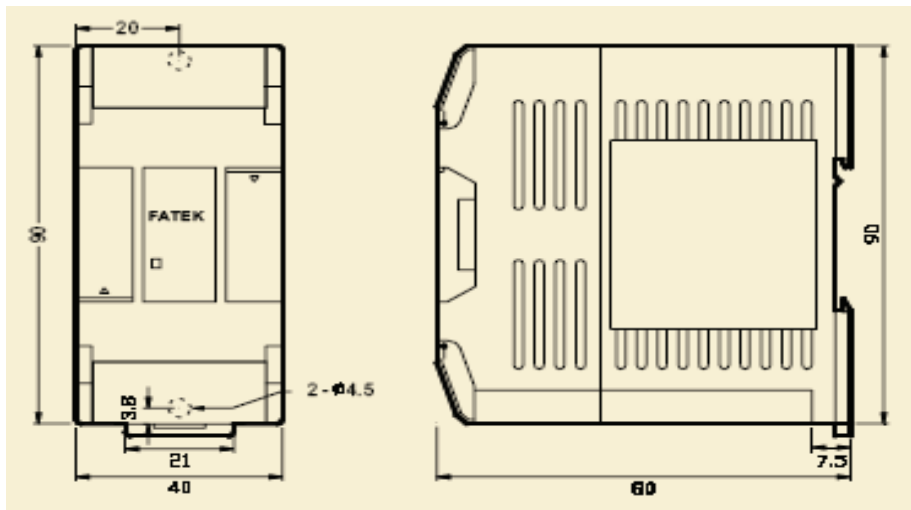
## 6 Channel A/D Input Module



### Introduction

FBs-6AD is one of the analog input modules of FATEK FBs series PLC. It provides 6 channels A/D input with 12 or 14 bit effective resolution.. Base on the different jumper settings it can measure the varieties of current or voltagesignal. The reading value is represented by a 14 bit value no matter the effective resolution is set to 12 or 14 bit. In order to filter out the field noise imposed on the signalit also provides the average of sample input function.

### Dimensions



### Specifications

**Total Channels** - 6 CH

**Resolution**- 14 or 12 bit

**Signal Resolution** - 0.3mV(Voltage), 0.61uA(Current)

**I/O Points Occupied** - 6 RI(Input Register)

**Conversion Time**- Updated each scan

**Accuracy**- ±1 %

**Max. Absolute Input Rating**-

±15V(Voltage), 30mA(Current)

**Software Filter**- Moving average

**Average Samples**- 1~16 configurable

**Input Impedance**- 63.2K Ω(Voltage), 250Ω(Current)

**Measurement Range**-

-10~+10V, -5~+5V, 0~10V, 0~5V

-20~+20mA, -10~+10mA, 0~20mA, 0~10mA

**Isolation**- Transformer(Power) and photo-coupler(Signal)

**Indicator(s)** - 5V PWR LED

**Supply Power**- 24V-15%/+20%, 2VA

**Internal Power Consumption**- 5V, 100mA

**Operating Temperature**- 0 ~ 60 °C

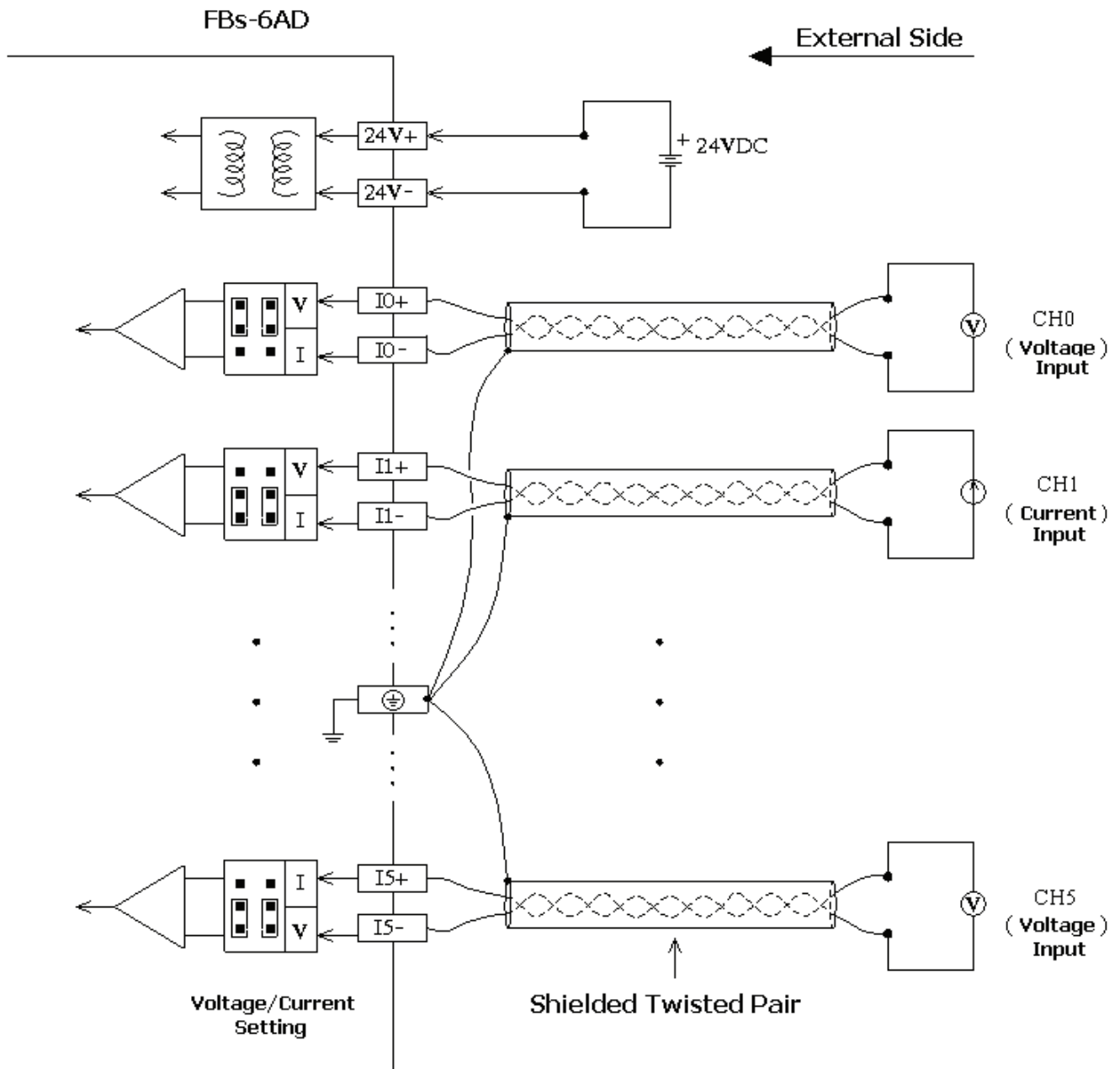
**Storage Temperature**- -20 ~ 80 °C

**Dimensions**- 40(W)x90(H)x80(D) mm

# FBs-6DA

## 6 Channel A/D Input Module

### Wiring Diagram



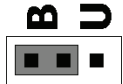

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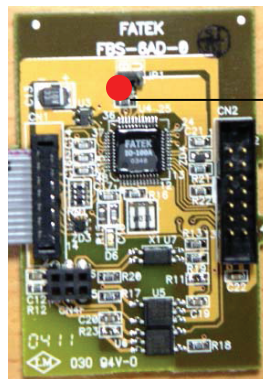
## 6 Channel A/D Input Module

### Jumper Setting

#### Input Code Format Selection

There are two input data formats can be selected which are bipolar and unipolar. The range of input value is 0~16383 for unipolar format while bipolar is -8192~8191. The two extreme values of each range corresponding to the minimal and maximal input signal. For example, if chose the -10V~+10V type signal, for 10V input signal the input value is 16383 for unipolar format while the bipolar format is 8191. Normally the input code format setting is consistent with input signal type (bipolar coded for bipolar input signal, unipolar coded for unipolar input signal). Only when use the FUN32 for offset conversion should set the bipolar code for unipolar input signal (Please refer the FUN32 description). The code format of all input channels are set by the same JP1 jumper. The location and the setting of jumper of JP1 are shown at below

Code Format	Value Range	JP1 Setting
Bipolar	-8192 ~ +8191	
Unipolar	0 ~ 16383	



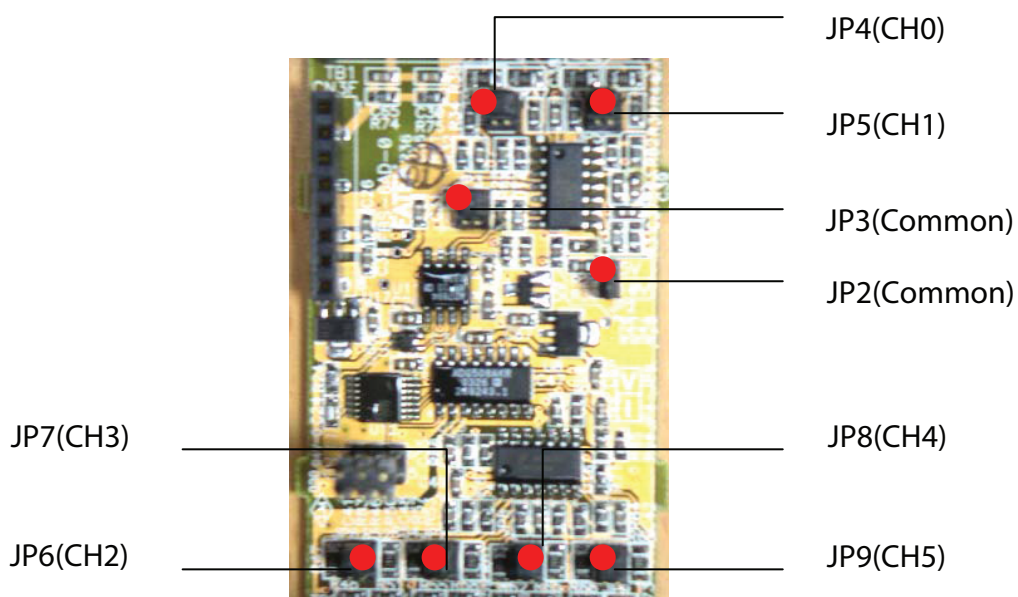
JP1

# FBs-6DA

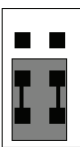
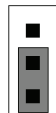
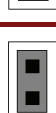

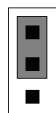

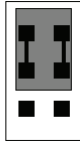
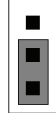
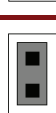

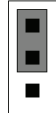

## 6 Channel A/D Input Module

### Input Signal Type setting

The current or voltage type setting of each channel can be set individually while the range and polarity setting share the same jumpers. All locations of jumper for input signal type setting are shown at below



### Range (JP2) and polarity (JP3) setting


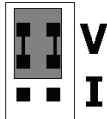
Signal Type	JP3 setting	JP2 setting
0~10V or 0~20mA	<b>B</b> 	 <b>5V</b>  <b>10V</b>
0~5V or 0~10mA	<b>U</b> 	 <b>5V</b>  <b>10V</b>
-10V~10V or -20mA~+20mA	<b>B</b> 	 <b>5V</b>  <b>10V</b>
-5V~+5V or -10mA~+10mA	<b>U</b> 	 <b>5V</b>  <b>10V</b>

# FBs-6DA

## 6 Channel A/D Input Module

CH0~CH5 share the JP2 and JP3 jumper, therefore all channels must be of the same type that is one of the four types listed at above table. Only the current/voltage setting can be chosen arbitrary.

### Current/Voltage Mode Setting

Signal Type	JP4(CH0)/JP5(CH1)/JP6(CH2)/JP7 (CH3)/JP8(CH4)/JP9(CH5)setting
Current	
Voltage	

The default factory settings of 6AD analogue input module are

**Input code format** – Bipolar(-8192~+8191)

**Input signal type and range** – Bipolar(-10V ~ +10V)

For those applications that require the setting differ than the above default setting should make some modifications of jumper position according to above tables.

While application, besides the setting of jumper should be conducted, the AI module configuration of Winproladder also need to be performed.

# FBs-6DA

## 6 Channel A/D Input Module

### The Jumper Settings of FBs-6AD Analogue Input Module

The default factory settings of 6AD analogue input module are

Input code format – Bipolar(-8192~+8191)

Input signal type and range – Bipolar(-10V ~ +10V)

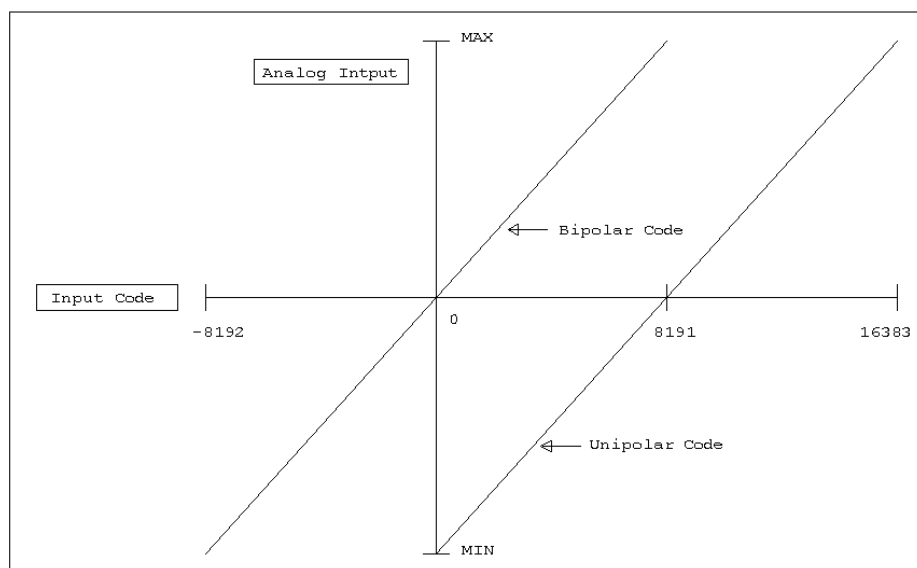
For those applications that require the setting differ than the above default setting should make some modification of jumper position according to following tables

Jumper function and its location

Jumper	Location	Function	Affected CH
JP1	Upper Board	Input code format setting	CH0~CH5
JP2	Lower Board	5/10V full scale setting	CH0~CH5
JP3	Lower Board	Polarity type of input signal	CH0~CH5
JP4	Lower Board	Voltage/Current input settin	CH0
JP5	Lower Board	Voltage/Current input settin	CH1
JP6	Lower Board	Voltage/Current input settin	CH2
JP7	Lower Board	Voltage/Current input settin	CH3
JP8	Lower Board	Voltage/Current input settin	CH4
JP9	Lower Board	Voltage/Current input settin	CH5

Input code format selection – JP1

Jumper position	Min. input code value * <sub>1</sub>	Max. input code value * <sub>2</sub>
B(Bipolar)	-8192	+8191
U(Unipolar)	0	16383



# FBs-6DA

## 6 Channel A/D Input Module

The MAX and MIN value in the vertical axis(analog input) represent the respective maximum and minimal input signal for a specific type. For example, if the input signal range set to  $-5V \sim +5V$

\*<sub>1</sub> – This value will be obtained when the input signal is  $-5V$

\*<sub>2</sub> – This value will be obtained when the input signal is  $+5V$

The value shown above is the raw 14-bit input value read by CPU, the actual value read by application is depends on the I/O configuration setting(Set by Winproladder software)

Input signal range and polarity setting – JP2,JP3

Jumper Location		Signal source type * <sub>3</sub>	
JP2	JP3	Voltage	Current
5V	B	$-5V \sim +5V$	$-10 \text{ mA} \sim +10 \text{ mA}$
10V	B	$-10V \sim +10V$	$-20 \text{ mA} \sim +20 \text{ mA}$
5V	U	$0V \sim +5V$	$0 \sim +10 \text{ mA}$
10V	U	$0V \sim +10V$	$0 \sim +20 \text{ mA}$

\*<sub>3</sub> – Each channel can be individually set for voltage or current type signal.

Current or Voltage type input signal selection- JP4~JP9

Jumper Position	Signal Type
V	Voltage
I	Current

Input Channel	Jumper
CH0	JP4
CH1	JP5
CH2	JP6
CH3	JP7
CH4	JP8
CH5	JP9