

FBs-TC6

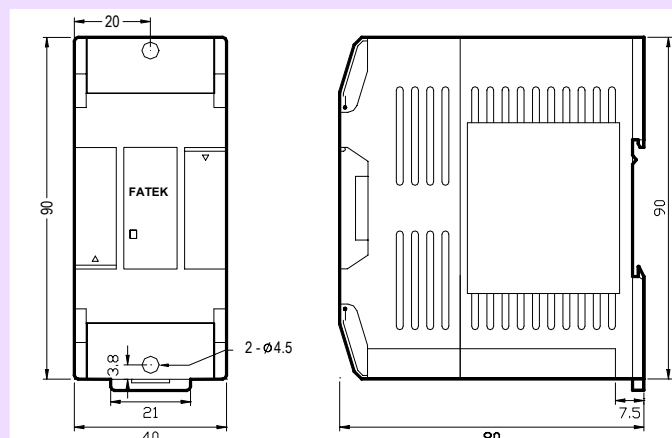
6 Channel Thermo-Couple Temperature Input Module



Introduction

FBs-TC6 is one of the temperature input modules of FATEK FBs series PLC. It provides 6 channels of thermo-couple temperature measurement input with 0.1 °C or 1 °C resolution. The scan rate for 0.1 °C resolution is 4 seconds, while the scan rate for 1 °C resolution is 2 seconds. The cold junction compensation is carried out inside the module, also it provides wire broken detection feature. To give the user more choices for the selection of thermo-couple type and in order to enhance the noise immunity, the isolation scheme is per channel basis. All the optional features of this module are software configurable, there are no hardware jumpers or switches for user to setup.

Dimensions



Specifications

Total Channels - 6 CH

Resolution- 0.1 °C or 1 °C

I/O Points Occupied –

1 RI(Input Register)

8 Discrete Output(DO)

Conversion Time- 2 or 4 Seconds

Accuracy- $\pm(1\% + 1^{\circ}\text{C})$

Sensor Type- J,K,R,S,E,T,B,N

Software Filter- Moving average

Average Samples- 1,2,4,8,16 configurable

Compensation- Built in cold junction compensation

Measurement Range-

J: -200~1200°C K: -200~1200°C

R: 0~1800°C S: 0~1700°C

E: -190~1000°C T: -190~380°C

B: 350~1800°C N: -200~1000°C

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

Indicator(s) – 5V PWR LED

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

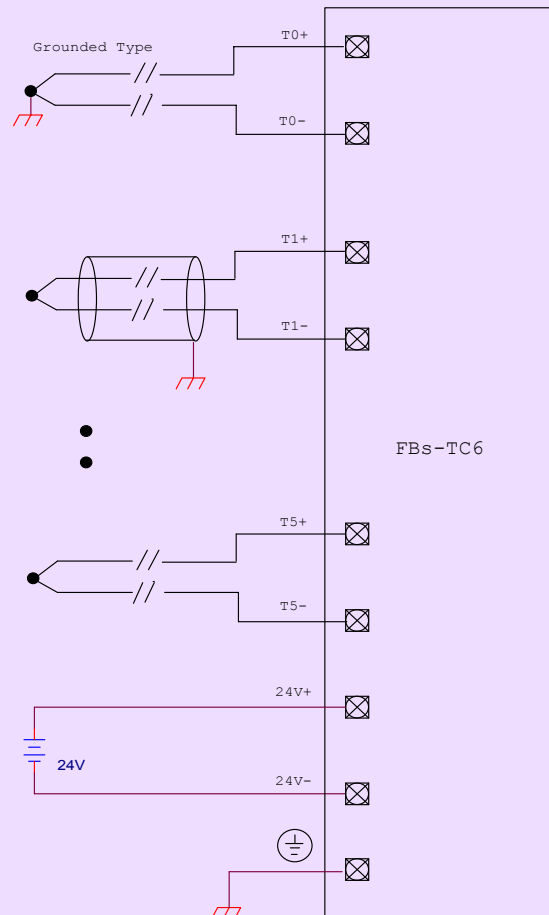
Internal Power Consumption- 5V, 35mA

Operating Temperature- 0 ~ 60 °C

Storage Temperature- -20 ~ 80 °C

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

Wiring Diagram



Note:

Because the thermo-couple signal is very small (in an order of μV), if possible please use the shielded twisted cable for signal wiring. Also if the length of thermo-couple wire is not long enough, please make sure to use the proper compensation wire otherwise will cause excessive error on cold junction compensation.



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I/O Configuration

Before the temperature value can be retrieved, the user should perform the I/O configuration of temperature module with the help of Winproladder software. The following screen will be shown when perform the I/O configuration

The screenshot shows the 'I/O Configuration MC v4.x' window. The 'Temp. Configuration' tab is active. The 'Utilization' table on the left lists I/O addresses (X0-X15, Y0-Y2) and their functions (all 'Undefined'). The main configuration area on the right contains the following fields:

- Starting Address of Configuration Table:** R100 (Range: R100~R108)
- Starting Address of Temperature Register:** R200 (Range: R200~R245)
- Starting Address of Working Register:** R300 (Range: R300~R323)
- Table of Sensor Configurations:**

Address	Module Name	Sensor Type
#1: R3840	FBs-TC6	J
#2: R3841	FBs-TC2	K
#3: R3842	FBs-TC16	T
#4: R3843	FBs-RTD6	PT100-DIN
#5: R3844	FBs-RTD16	PT1000-DIN
#6:		
#7:		
#8:		

Additional configuration options on the right:

- Unit of Temp.:** Celsius
- Times of Average:** No
- Scan Rate:** Normal

Buttons at the bottom: Ok, Cancel.

The user need to assign a starting register of a contiguous register area for holding temperature reading value and areas for storing the configuration table and working scratchpad and define the sensor type, unit of temperature, scan speed and samples for average. Please refer the advanced manual II for detail explanation.