

3.6 8-channel analog input/voltage type/ $\pm 10V$, 0~10V (DF50-M-8AI-U-4)

- The analog input module can receive $\pm 10V$, 0-10V standard signals.
- 8-channel analog input, voltage type.
- Two LED indicators indicate that the module is operating normally and communication is normal.
- Each input channel is equipped with an LED indicator light.
- Magnetic isolation between the on-site layer and the system layer.
- Transmit in 16 bit resolution.
- Protection level IP20.



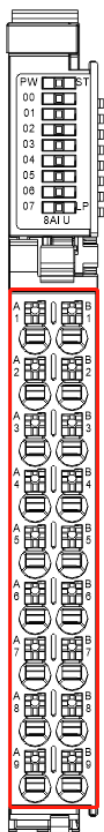
3.6.1 Specification parameters

Technical Information	
Product Description	Analog input module, 8 inputs, voltage type
Number of channels	8
Signal type	Single ended
Input signal voltage	24VDC

resolving power	16 Bit
accuracy	0.20%
data size	16 Byte
measuring range	Voltage type ($\pm 10V/0\sim+10V$)
Supply voltage (system)	5VDC; Through data contacts
Power consumption	<200mA
working voltage	24VDC ($-15\sim+20\%$) across contact points through power supply
quarantine	On site magnetic isolation
Code value range (Profinet/Ethernet IP)	$0\sim+10V$, $-10\sim+10V$
Code value range (other buses)	$0\sim+10V$, $-10\sim+10V$
sampling frequency	20-300Hz (configurable)
Conversion time	1ms
Internal resistance	>450K Ω
Error diagnosis	Yes
Reverse circuit protection	Yes
Wiring parameters	
Connection technology: input end	PUSH-IN type wiring port
line type	Input
Crimping area of wire	0.14~1.5mm ² /26~16AWG
Strip length	8~10mm
Installation method	DIN-35 type guide rail
Material parameters	
Colour	Black
Housing material	PC plastic, PA66
Consistency flag	CE
Environmental requirements	
Permissible ambient temperature (during operation)	-25~60°C
Permissible ambient temperature(storage)	-40~85°C
Protection type	IP20
Pollution leve	2. Comply with IEC 61131-2 standard
Working altitude	Without temperature influence:0~2000m
Relative humidity (non condensing)	5~95%RH
Anti vibration	4g, Complies with IEC 60068-2-6 standard
Impact resistance	15g, Complies with IEC 60068-2-27 standard
EMC - Immunity	Complies with EN 61000-6-2 standard
EMC-Radiated Interference	Complies with EN 61000-6-3 standard
Corrosion resistance	Complies with IEC 60068-2-42 and IEC 60068-2-43 standards
Permissible H2S pollutant concentration at 75% relative humidity	10ppm
Permissible SO2 pollutant concentration at 75% relative humidity	25ppm

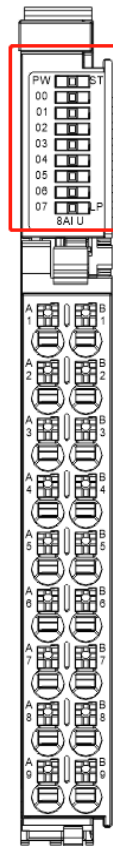
3.6.2 Hardware interface

3.6.2.1 Definition of wiring port



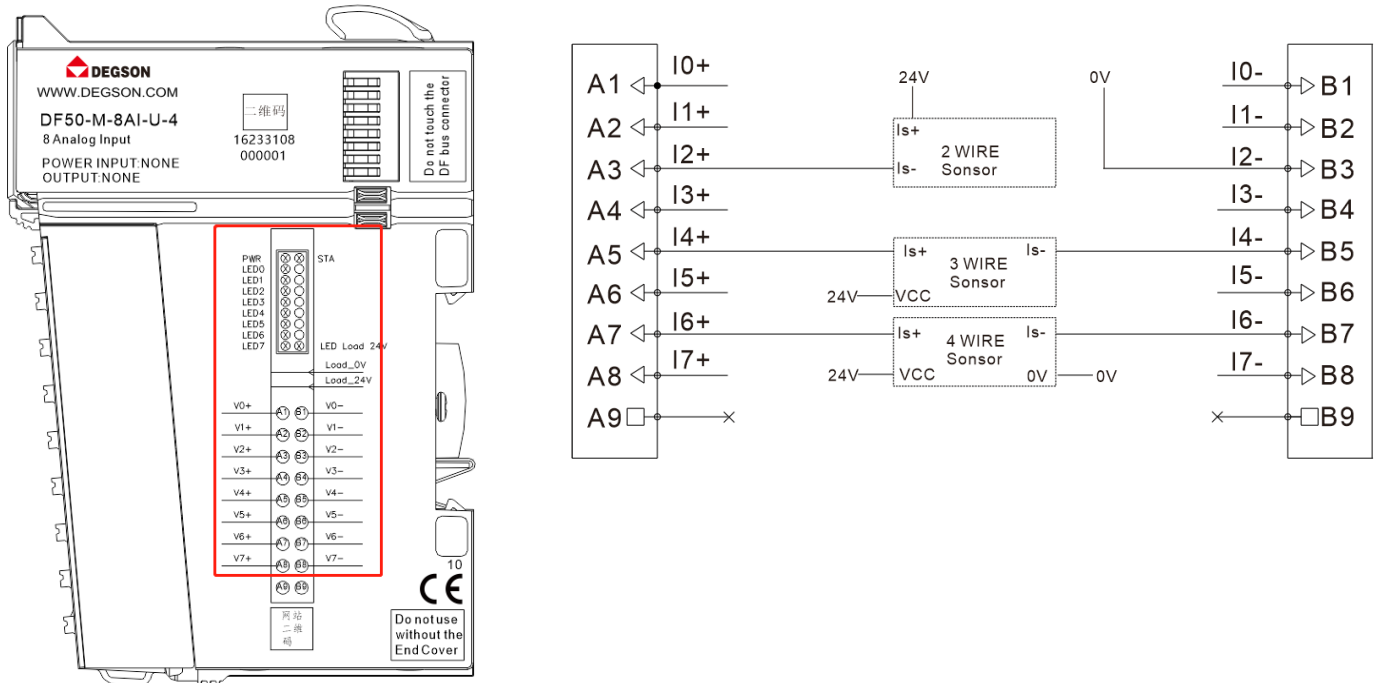
Serial Number	Signal	Serial Number	Signal	Explanatory note
A1	V0+	B1	V0-	Current input channel 1
A2	V1+	B2	V1-	Current input channel 2
A3	V2+	B3	V2-	Current input channel 3
A4	V3+	B4	V3-	Current input channel 4
A5	V4+	B5	V4-	Current input channel 5
A6	V5+	B6	V5-	Current input channel 6
A7	V6+	B7	V6-	Current input channel 7
A8	V7+	B8	V7-	Current input channel 8
A9	/	B9	/	/

3.6.2.2 Definition of LED indicator lights



LED indicator light	Explanatory note
V00~V07	On: Analog signal input is normal
	Off: Abnormal analog signal input
PW	On: Internal bus power supply is normal
	Off: Abnormal internal bus power supply
ST	Power on stage: green light on: module initialization abnormal, green off: module initialization normal
	Operation phase: reen light flashing: module internal bus working normally, green off: module internal bus working abnormally
EP	Green light on: module external interface power supply is normal
	Green light off: Abnormal power supply to the external interface of the module

3.6.2.3 Wiring diagram



3.6.3 Process Data Definition

Data in: 4 Word	
Word 1	AD Value CH1: First channel input data
Word 2	AD Value CH2: Second channel input data
Word 3	AD Value CH3: Third channel input data
Word 4	AD Value CH4: Fourth channel input data

Process Data Definition Description:

Process data description (voltage type)					
Signal Range	Voltage value	Decimal data	Hexadecimal data	Scope	Transformation relationship
±10V	>11.76V	32767	0x7FFF	Overflow	$D = 27648 \times U / 10$ $U = D \times 10 / 27648$
	11.76V	32511	0x7EFF	Upper limit value	
	10V	27648	0x6C00	Normal range	
	5V	13824	0x3600		
	0V	0	0x0000		
	-5V	-13824	0xCA00		
	-10V	-27648	0x9400		
	-11.76V	-32511	0x8100	Lower limit value	
	<-11.76V	-32768	0x8000	Underflow	
0-10V	>11.76V	32767	0x7FFF	Overflow	$D = 27648 \times U / 10$ $U = D \times 10 / 27648$
	11.76V	32511	0x7EFF	Upper limit value	
	10V	27648	0x6C00	Normal range	
	5V	13824	0x3600		
	0V	0	0x0000		
2-10V	>11.41V	32767	0x7FFF	Overflow	$D = 27648 \times (U - 2) / 8$ $U = D \times 8 / 27648 + 2$
	11.41V	32511	0x7EFF	Upper limit value	
	10V	27648	0x6C00	Normal range	
	6V	13824	0x3600		
	2V	0	0x0000		
	0.59 V	-4864	0xED00	Lower limit value	
	<0.59 V	-32768	0x8000	Underflow	
±5V	>5.88V	32767	0x7FFF	Overflow	$D = 27648 \times U / 5$ $U = D \times 5 / 27648$
	5.88V	32511	0x7EFF	Upper limit value	
	5V	27648	0x6C00	Normal range	
	2.5V	13824	0x3600		
	0V	0	0x0000		
	-2.5V	-13824	0xCA00		
	-5V	-27648	0x9400		

	-5.88V	-32511	0x8100	Lower limit value		
	<-5.88V	-32768	0x8000	Underflow		
	>5.88V	32767	0x7FFF	Overflow		
0-5V	5.88V	32511	0x7EFF	Upper limit value	$D = 27648 \times U / 5$	
	5V	27648	0x6C00	Normal range	$U = D \times 5 / 27648$	
	2.5V	13824	0x3600			
	0V	0	0x0000			
	>5.7V	32767	0x7FFF	Overflow		
1-5V	5.7V	32511	0x7EFF	Upper limit value	$D = 27648 \times (U - 1) / 4$	
	5V	27648	0x6C00	Normal range		$U = D \times 4 / 27648 + 1$
	3V	13824	0x3600			
	1V	0	0x0000			
		0.3V	-4864	0xED00	Lower limit value	
		<0.3V	-32768	0x8000	Underflow	

3.6.4 Mechanical Installation

Installation dimensions

The installation size information is shown in the following figure.

