# ◆ 8 channel Analog input /voltage type /±10V ,0～10V(DF20-M-8AI-U-4)

➢ This analog input module processes standard ±10V ,0～10V signals.

➢ 8 channel Analog input , voltage type .

➢ The two LED indicators respectively indicate the normal operation and communication of the module.

➢ Each input channel has an LED indicator light.

➢ Field and system levels are Magnetic isolated.

➢ Transmitted with a resolution of 16 bits.

➢ Protection level IP20.
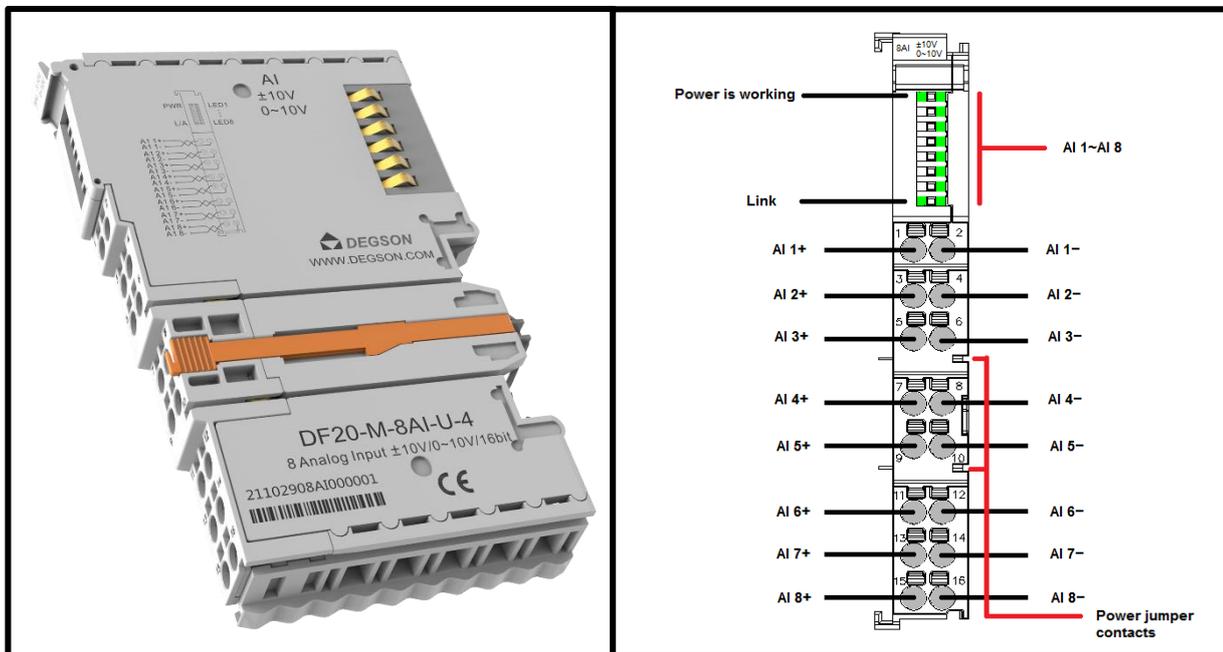
1.Specification

| Technical data	
Number of channels	8
Signal type	Differential signal
Input signal voltage	24VDC
Connection type	2-line
Resolution [bit]	32 Bit
Precision	0.20%
Data size	16 Byte
Measuring range	voltage（±10V/0～+10V）
Supply voltage (system)	5VDC；via data contacts
Current consumption	<200mA
Working voltage	24VDC（-15%～+20%）via power jumper contacts
Isolation	500Vsystem/field Magnetic isolation
Measuring range（Profinet/Ethernet IP）	(0～+10V) 0～27648 (-10～+10V) -27648～27648
Measuring range(Others)	(0～+10V) -32768～32767 (-10～+10V) -32768～32767
Sampling rate	20～300Hz（Configuration）
Conversion time	1ms
Internal Resistance	>450KΩ
Fault diagnosis	Yes
Reverse protection	Yes
Indicators	10 x LED Green
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Connection data	
Connection technology: inputs / outputs	16 xvia pluggable connector
Connection type 1	Inputs/Outputs
Area of wire	0.2～1.5mm²/28～16AWG
Strip length	8～9mm/0.31～0.35inches
Mounting type	DIN-35 RAIL
Material Data	
Color	light gray
Housing material	Polycarbonate; polyamide 6.6
Conformity marking	CE
Environmental requirements	
Ambient temperature (operation)	-25～60℃
Surrounding air temperature (storage)	-40～85℃
Protection type	IP20
Pollution degree (5)	2，Per IEC 61131-2
Operating altitude	without temperature derating：0～2000m
Mounting position	Any
Relative humidity (without condensation)	5～95%RH
Vibration resistance	4g，Per IEC 60068-2-6
Shock resistance	15g，Per IEC 60068-2-27
EMC immunity to interference	Per EN 61000-6-2
EMC emission of interference	Per EN 61000-6-3
Exposure to pollutants	Per IEC 60068-2-42 and IEC 60068-2-43
Permissible pollutant concentration H2S at a relative humidity < 75%	10ppm
Permissible pollutant concentration SO 2 at a relative humidity < 75%	25ppm

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2.Hardware Interface

● **Wiring Terminal**
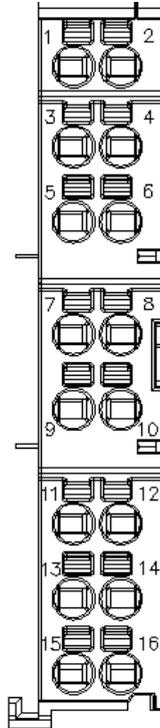
No.		Signal		Description
1	2	AI 1+	AI 1-	Voltage input channel1
3	4	AI 2+	AI 2-	Voltage input channel2
5	6	AI 3+	AI 3-	Voltage input channel3
7	8	AI 4+	AI 4-	Voltage input channel4
9	10	AI 5+	AI 5-	Voltage input channel5
11	12	AI 6+	AI 6-	Voltage input channel6
13	14	AI 7+	AI 7-	Voltage input channel7
15	16	AI 8+	AI 8-	Voltage input channel8

● LED Indicator
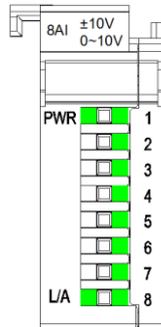
LED Indicator	State		Definition
PWR	Green:ON		Power Normal
	Green:OFF		Power Failure
L/A	Power-on	Green:ON	Module is being initialized
		Green:OFF	Module initialization is complete
	Running	Green: Flash	The module runs normally
		Green:OFF	Module operating fault
1	Green:ON		Input signal invalid
	Green:OFF		Input signal valid
2	Green:ON		Input signal invalid
	Green:OFF		Input signal valid
3	Green:ON		Input signal invalid
	Green:OFF		Input signal valid
4	Green:ON		Input signal invalid
	Green:OFF		Input signal valid
5	Green:ON		Input signal invalid
	Green:OFF		Input signal valid
6	Green:ON		Input signal invalid
	Green:OFF		Input signal valid
7	Green:ON		Input signal invalid
	Green:OFF		Input signal valid
8	Green:ON		Input signal invalid
	Green:OFF		Input signal valid

- **Wiring**
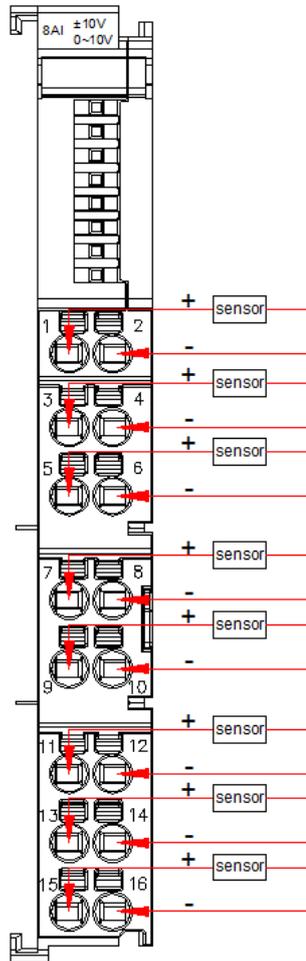
3.Process data definition

DF20-M-8AI-U-4 Module process data definition

Input data									
Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Data type
Byte 0	Analog Input Data(Channel 1)								Int16
Byte 1									
Byte 2	Analog Input Data(Channel 2)								Int16
Byte 3									
Byte 4	Analog Input Data(Channel 3)								Int16
Byte 5									
Byte 6	Analog Input Data(Channel 4)								Int16
Byte 7									
Byte 8	Analog Input Data(Channel 5)								Int16
Byte 9									
Byte 10	Analog Input Data(Channel 6)								Int16
Byte 11									
Byte 12	Analog Input Data(Channel 7)								Int16
Byte 13									
Byte 14	Analog Input Data(Channel 8)								Int16
Byte 15									

Data description:

Analog Input Data(Channel 1~8)：Analog signal Input value of corresponding channel.

Analog Input Data（DF20-M-8AI-U-4）								
(Profinet/Ethernet IP)				Other				
（-10V~10V）	Decimal	（0V~10V）	Decimal	（-10V~10V）	Decimal	（0V~10V）	Decimal	
>10.12	32767	>10.12	32767	/	/	/	/	Overflow
10.12 ... ... 10+0.3617	27979 27649	10.12 ... ... 10+0.3617	27979 27649	/	/	/	/	Exceed the upper limit
10 ... ... -10	27648 ... ... -27648	10 0	27648 0	10 ... ... -10	32767 ... ... -32768	10 0	32767 0	Rated range
-10-0.3617 ... ... -10.12	-27649 ... ... -27979	/	/	/	/	/	/	Exceed the lower limit
<-10.12	-32768	/	/	/	/	/	/	Underflow

4.Machinery installation

● **Dimension drawing**

The installation size is shown in the following figure (unit: mm):