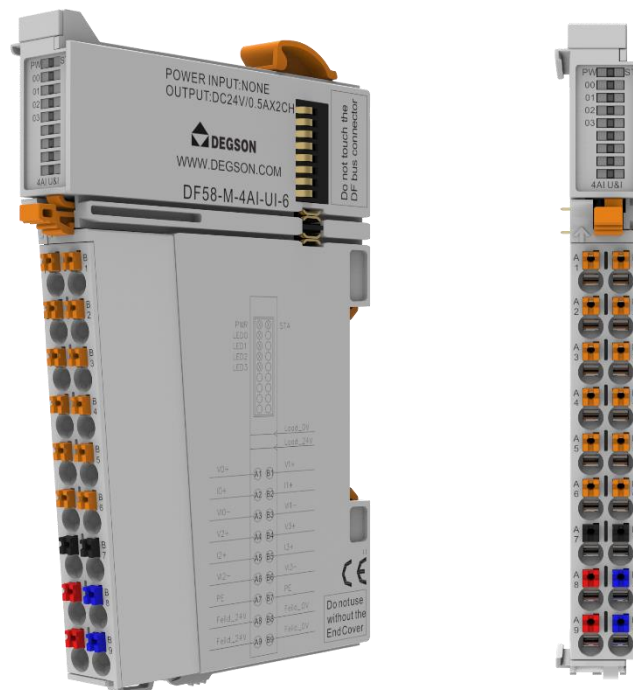


## ◆ 4-channel analog input/voltage type/current type (DF58-M-4AI-UI-6)

- The analog input module can receive voltage and current standard signals.
- 4 channel analog input, voltage type, current type.
- Two LED indicators indicate that the module is operating normally and communication is normal.
- Magnetic isolation between the on-site layer and the system layer.
- Transmit in 16 bit resolution.
- Protection level IP20



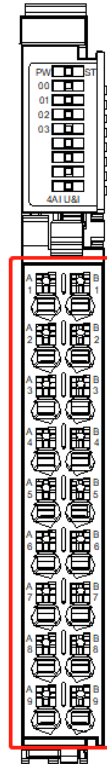
## 1. Specification parameters

Technical Information	
model	DF58-M-4AI-UI-6
Product Description	Analog input module, 4 inputs, voltage type, current type
Input method	Voltage type, current type
Number of channels	four
Conversion time	400us/channel
Voltage input range	$\pm 10V$ , 0-10V, 2-10V, $\pm 5V$ , 0-5V, 1-5V
Voltage input impedance	>100K $\Omega$
Voltage input accuracy (25 °C)	$\pm 0.1\%$ (full range)
Voltage input accuracy (full temperature range)	$\pm 0.2\%$ (full range)
Voltage input limit	$\pm 15V$
Voltage input diagnosis	support
Current input range	$\pm 20mA$ , 0-20mA, 4-20mA
Current acquisition impedance	250 $\Omega$
Current input accuracy (25 °C)	$\pm 0.1\%$ (full range)
Current input accuracy (full temperature range)	$\pm 0.2\%$ (full range)
Current input limit	Instantaneous $\pm 30mA$ , average $\pm 24mA$
Current input diagnosis	No support for wire breakage detection
Is it isolated	No isolation between interface channels, power supply and interface isolation, interface and bus isolation
Diagnostic reporting function configuration	Support input overflow alarm diagnosis and reporting
Conversion Mode Configuration	$\pm 10V$ , 0-10V, 2-10V, $\pm 5V$ , 0-5V, 1-5V, $\pm 20mA$ , 0-20mA, 4-20mA
Filter parameter configuration	The software filtering time can be configured through the upper computer, with a setting range of 0-65535, Bit is the sampling period
Overlimit detection enable configuration	support
Peak Hold Enable Configuration	support
Conversion Digital Range Configuration	Default configuration (-27648 to 27648), supporting $\pm 32000$
Sampling time	4-channel 2ms
Sampling refresh	Asynchronous refresh according to sampling time, does not require synchronous refresh according to bus cycle
Stop mode	Keep the current value and do not refresh again

Signal type	Differential
Isolation method	Magnetic isolation from the on-site layer
data size	8 Byte
resolving power	16 Bit
sampling frequency	20-300Hz (configurable)
<b>Power parameters</b>	
working voltage	24V DC +20 %/ -15 %
System feed current	<15mA
<b>Wiring parameters</b>	
Connection technology: input/output	PUSH-IN type terminal blocks
Connection type (1)	Input/Output
Crimping area of wire	0.2~1.5mm <sup>2</sup> /26~16AWG
Strip length	8-10mm <sup>2</sup>
Installation method	DIN-35 type guide rail
<b>Material parameters</b>	
colour	Light gray
Shell material	PC plastic, PA66
Consistency flag	CE
<b>Environmental requirements</b>	
Permissible ambient temperature (during operation)	-25-60 °C
Permissible ambient temperature (storage)	-40-85 °C
Protection type	IP20
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	Temperature without derating: 0-2000m
Installation position	arbitrarily
Relative humidity (non condensing)	5-95% RH
Anti vibration	4g, in accordance with IEC 60068-2-6 standard
Impact resistance	15g, in accordance 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 H <sub>2</sub> S pollutant concentration at 75% relative humidity	10ppm
Permissible SO <sub>2</sub> pollutant concentration at 75% relative humidity	25ppm

## 2. Hardware interface

### ● 2.1 Terminal Definition

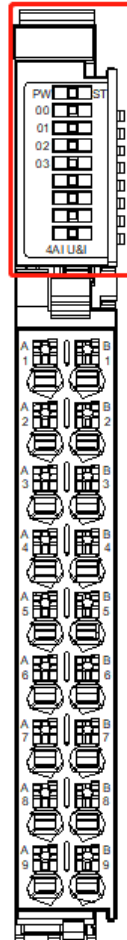


serial number	signal	note
A1	V0+	Voltage/current input channel 0
A2	I0+	
A3	V0-/I0-	
A4	V2+	Voltage/current input channel 2
A5	I2+	
A6	V2-/I2-	
A7	PE	PE
A8	Load 24V	Load 24V
A9	Load 24V	
serial number	signal	note
B1	V1+	Voltage/current input channel 1
B2	I1+	
B3	V1-/I1-	
B4	V3+	Voltage/current input channel 3
B5	I3+	
B6	V3-/I3-	
B7	PE	PE
B8	Load 0V	Load 0V

B9

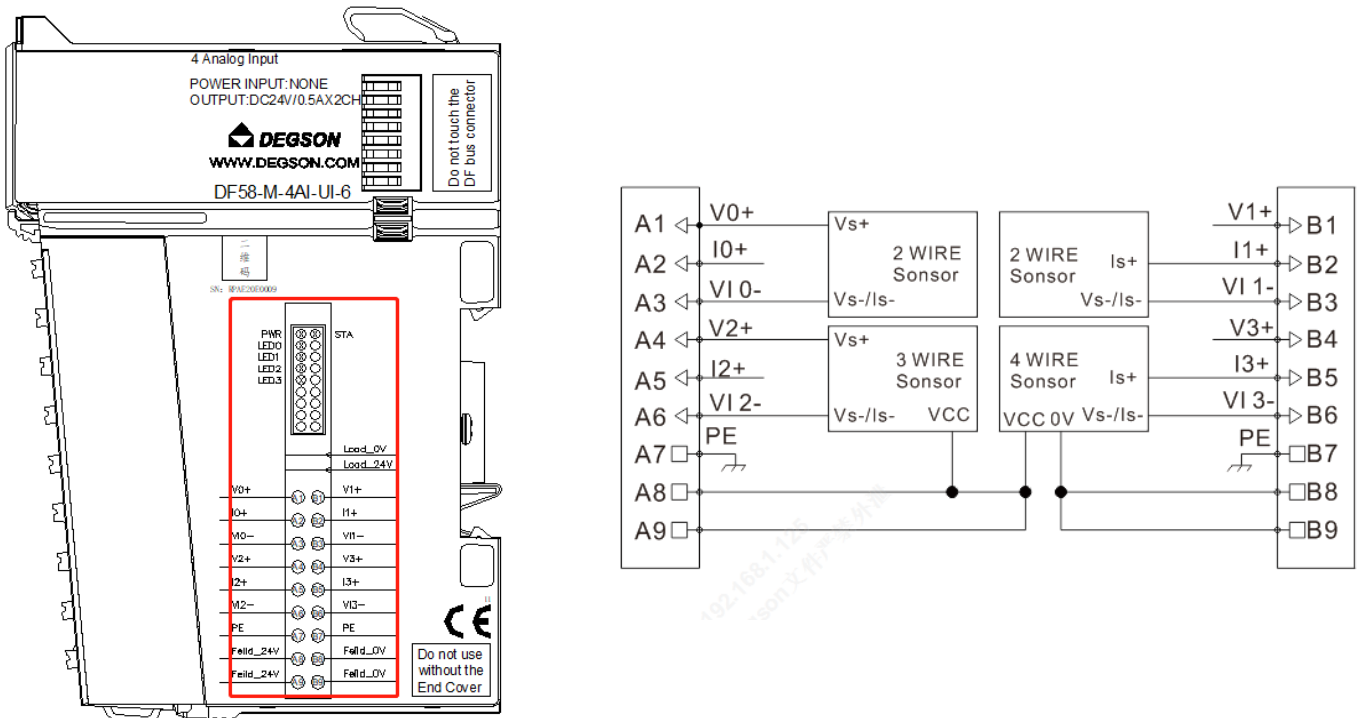
Load 0V

● 2.2 Definition of LED indicator lights



Pilot lamp	Note
V0~V3,I0~I3	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 light off: module initialization normal
	Operation phase: Green flashing: The internal bus of the module is working normally, green off: The internal bus of the module is working abnormally

## ● 2.3 Wiring diagram



## 3.Process Data

Input voltage process parameters (Table 5.4.3.1), taking the voltage range ( $\pm 10V$ ) of 27648 as an example.

Rated voltage range: The input channel voltage is  $-10V\sim 10V$ , and the monitored channel value is  $-27648\sim 27648$ .

Over limit: 1. The voltage of the input channel is  $10V+0.3617mV\sim 10.12V$ , and the monitored channel value is 27649;

The voltage of the input channel is  $10.12V$ , and the monitored channel value is 27979.

Overflow: The voltage of the input channel is greater than  $10.12V$ , and the monitored channel value is 32767.

Lower limit exceeded: 1. The voltage of the input channel is  $-10V-0.3617mV \sim -10.12V$ , and the monitored channel value is  $-27649$ ;

The voltage of the input channel is  $-10.12V$ , and the monitored channel value is  $-27979$ .

Underflow: The voltage of the input channel is less than  $-10.12V$ , and the monitored channel value is  $-32768$ .

chart 5.4.3.1 Process data definition (voltage type)

Process data definition (voltage type)								
voltage (0-5V)	voltage (1-5V)	voltage (0-10V)	voltage (2-10V)	voltage ( $\pm 5V$ )	voltage ( $\pm 10V$ )	Decimal	Hexadecimal	
>5.06	>5.06	>10.12	>10.12	>5.06	>10.12	32767	0x7FFF	Overflow
5.06	5.06	10.12	10.12	5.06	10.12	27979	0x6D4B	Exceeding the upper limit
$5V+0.1808mV$	$5V+0.1808mV$	$10V+0.3617mV$	$10V+0.3617mV$	$5V+0.1808mV$	$10V+0.3617mV$	27649	0x6C01	
5	5	10	10	5	10	27648	0x6C00	Rated range
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
2.5	3	5	6	2.5	5	13824	0x3600	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
0	1	0	2	0	0	0	0x0000	
/	/	/	/	-	-	-	-	
/	/	/	/	-	-	-	-	
/	/	/	/	-2.5	-5	-13824	0xCA00	
/	/	/	/	-	-	-	-	
/	/	/	/	-	-	-	-	
/	/	/	/	-5	-10	-27648	0x9400	
/	/	/	/	$-5V-0.1808mV$	$-10V-0.3617mV$	-27649	0x93FF	Beyond the lower limit
/	/	/	/	-5.06	-10.12	-27979	0x92B5	
/	<0.3	/	<0.59	<-5.06	<-10.12	-32768	0x8001	Underflow

Input current process parameter table (5.4.3.2), taking current (4-20mA) and 27648 range as an example.

Rated voltage range: The current of the input channel is 4-20mA, and the monitored channel value is -27648~27648.

Over limit: 1. The current of the input channel is 20.005~22.81mA, and the monitored channel value is 27649;

The current of the input channel is 22.81mA, and the monitored channel value is 32511.

Overflow: The current of the input channel is greater than 22.81mA, and the monitored channel value is 32767.

Over limit: 1. The current of the input channel is 3.9995mA~1.1852mA, and the monitored channel value is -1;

The current of the input channel is 1.1852mA, and the monitored channel value is -4864.

Underflow: The current of the input channel is less than 1.1852mA, and the monitored channel value is -32768.



chart 5.4.3.2 Process data definition (current type)

Process data definition (current type)				
current (0-20ma)	current (4-20ma)	Decimal	Hexadecimal	
>23.515	>22.810	32767	0x7FFF	Overflow
23.515	22.81	32511	0x7EFF	Exceeding the upper limit
-	-	-	-	
-	-	-	-	
20.0007	20.0005	27649	0x6C01	
20	20	27648	0x6C00	Rated range
-	-	-	-	
-	-	-	-	
10	12	13824	0x3600	
-	-	-	-	
-	-	-	-	
0	4	0	0x0000	Beyond the lower limit
<0.0	3.9995	-1	0xFFFF	
-	-	-	-	
-	-	-	-	
-	1.1852	-4864	0xED00	Underflow
/	<1.1852	-32768	0x8001	

## 4. Mechanical Installation

### ● 4.1 Installation dimensions

The installation dimension information is shown in the following figure, in millimeters:

