

- ◆ **16-channel digital output/24VDC/NPN (DF5-M-16DO-N)**
- ◆ The digital output module can transmit binary signals from automation equipment to the connected actuators (solenoid valves, etc.).
- ◆ 16 channel digital output, PNP high level effective.
- ◆ Each output module is equipped with an anti-interference filter.
- ◆ Each output module is equipped with LED indicator lights.
- ◆ Isolation between the on-site layer and the system layer is achieved through optocouplers.
- ◆ Protection level IP20.



## 1. Specification parameters

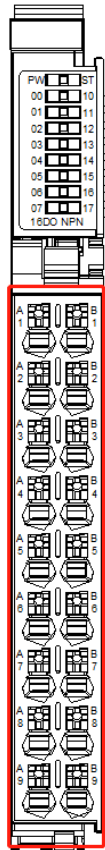
### Technical Information

model	DF58-M-16DO-N
Product Description	Digital output module, 16 outputs, NPN, 24VDC
Signal type	NPN
OFF signal voltage	High impedance
ON signal voltage	0V DC
Number of channels	sixteen
data size	2 Byte
line type	1-wire system
Reverse circuit protection	support
Overcurrent protection	support
Short circuit protection	support
Isolation method	Optoelectronic isolation from the on-site layer
Error diagnosis	support
Switching frequency (resistive)	100Hz
Switching frequency (lamp)	10Hz
Switching frequency (inductive)	0.2Hz
Response time of protection circuit	<100 $\mu$ S
Maximum current output per channel	500 mA
Leakage current	Maximum value: 10uA
Hardware response time	100us/100us
Output impedance	<200m $\Omega$
output delay	OFF to ON: Max.100us, ON to OFF: Max.150us
Protection function	Overcurrent protection: 0.5A typical value 1.9A, Support short circuit protection
Load type	Inductive (7.2W/point, 24W/module), resistive (0.5A/point, 4A/module), light (5W/point, 18W/module)
Output action display	When the output is in the drive state, the indicator light is on (LED is controlled by the microcontroller IO software)
Input Derating	Derate by 50% when operating at 55 °C (while the output current of ON does not exceed 2A), or by 10 °C when the output point is fully ON
IO mapping	Supports three IO mapping methods: bit access, byte access, and word access
Fault shutdown output status mode	Clear to zero, maintain the current value, and output according to the preset value
Fault shutdown output preset value	0 or 1
In shutdown mode	Output according to the fault shutdown status mode and preset values, no longer refreshing
<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

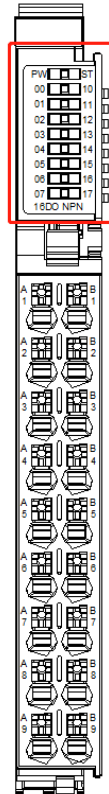
## 2. Hardware interface

### ● 2.1 Terminal Definition



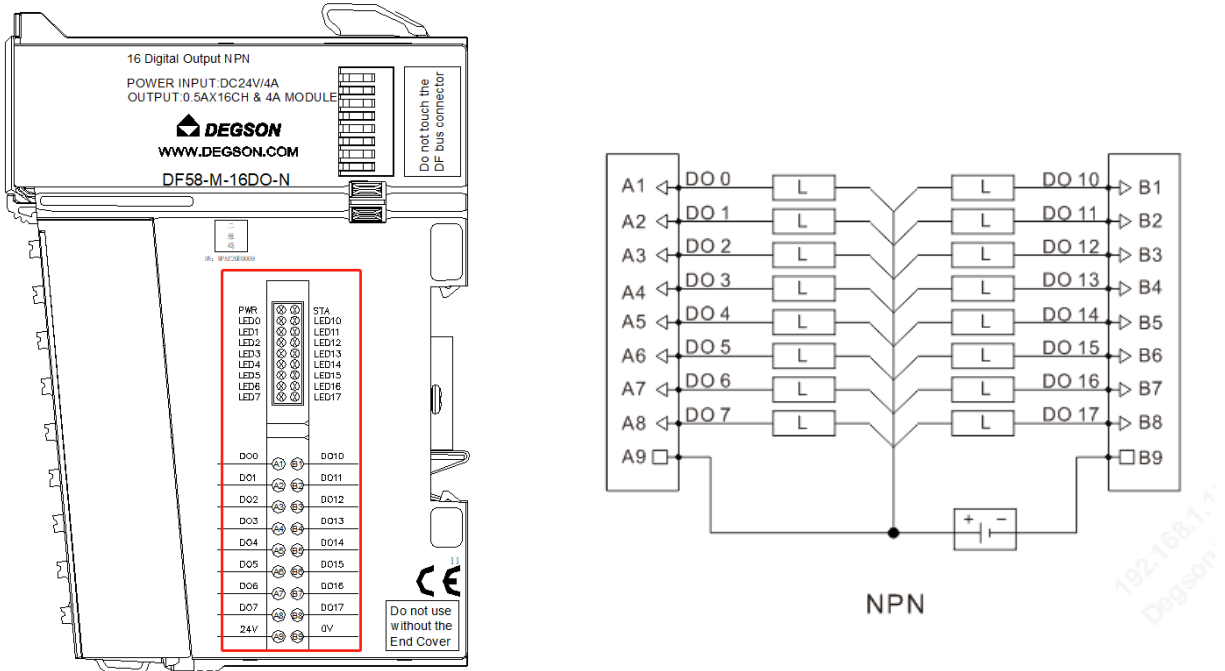
serial number	signal	note	serial number	signal	note
A1	DO 0	Low level output	B1	DO 10	Low level output
A2	DO 1		B2	DO 11	
A3	DO 2		B3	DO 12	
A4	DO 3		B4	DO 13	
A5	DO 4		B5	DO 14	
A6	DO 5		B6	DO 15	
A7	DO 6		B7	DO 16	
A8	DO 7		B8	DO 17	
A9	24V	24V	B9	0V	24V

## ● 2.2 Definition of LED indicator lights



Pilot lamp	Note
00 ~ 07, 10 ~ 17	On: Effective output signal Off: Invalid output signal
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 light flashing: module internal bus working normally, green light off: module internal bus working abnormally

## ● 2.3 Wiring diagram



Note: The 24V power supply for A9 and B9 is provided externally.

## 3. Process Data Definition

### DF58-M-16DO-N Module Process Data Definition

data in								
Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	DO Channel 7	DO Channel 6	DO Channel 5	DO Channel 4	DO Channel 3	DO Channel 2	DO Channel 1	DO Channel 0
Byte 1	DO Channel 17	DO Channel 16	DO Channel 15	DO Channel 14	DO Channel 13	DO Channel 12	DO Channel 11	DO Channel 10

#### Data description:

DO Channel (00~07.10~17): When the output signal of the corresponding channel is valid, this position is 1, which outputs a high level. If it is invalid, it is 0.

1: Output signal valid 0: Output signal invalid

## 4. Mechanical Installation

### ● 4.1 Installation dimensions

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

