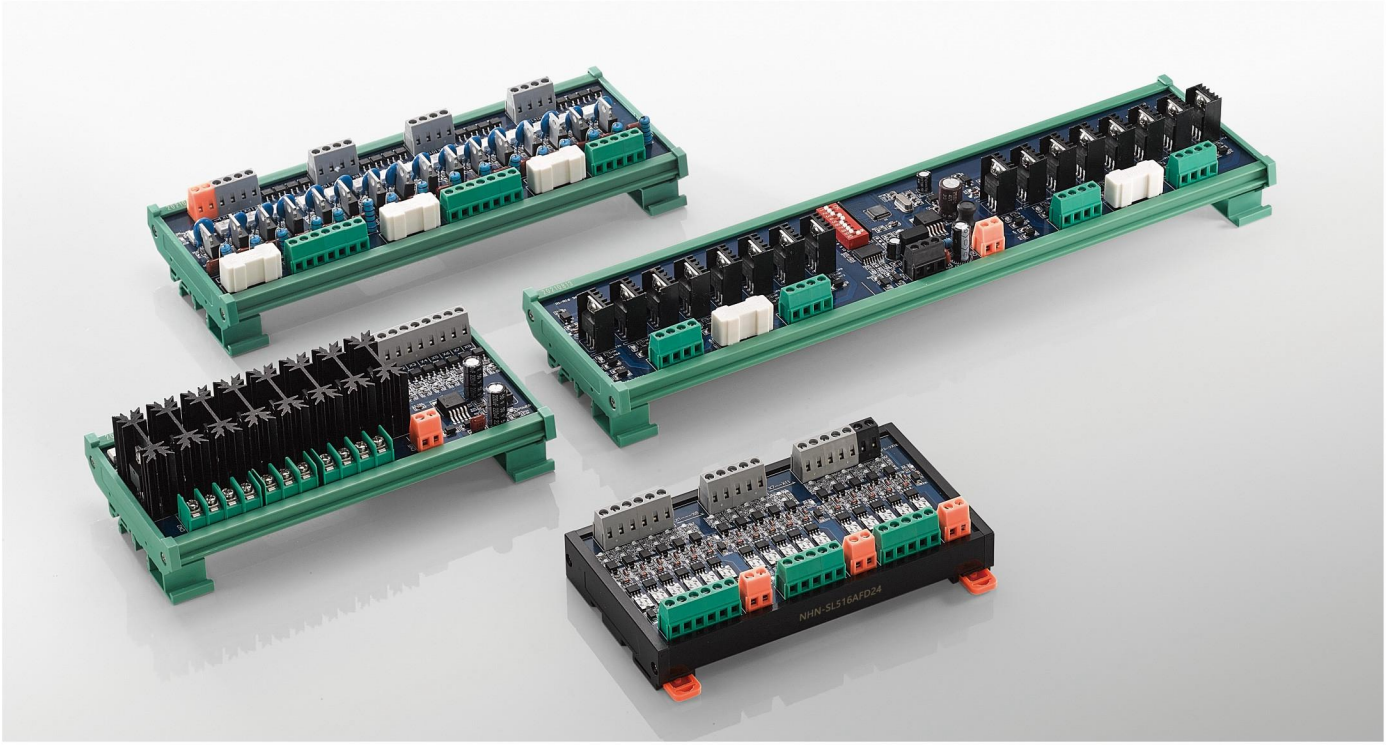
NHN-SL

PLC Amplifier Board
PLC放大板



型号解析 MODEL ANALYSIS

NHN	-	S	L1	04	A	N	D24

品牌 Brand

NNC 继电器模块
NNC Relay module

继电器类型 Relay type

S	PLC放大板 PLC Amplifier Board

设计序列号 Design serial number

L1	PLC直流放大板 PLC DC Amplifier Board
L2	PLC交流放大板 PLC AC Amplifier Board
L3	PLC直流大功率放大板 PLC DC High Power Amplifier Board
L4	PLC交流大功率放大板 PLC AC High Power Amplifier Board
L5	PLC直流带短路保护放大板 DC Amplifier Board with short-circuit protection
L6	PLC直流大功率带短路保护放大板 DC high-power Amplifier Board with short-circuit protection

继电器控制单元数量 Number of relay control Bit

04	4 位 4 Bit
08	8 位 8 Bit
16	16 位 16 Bit
32	32 位 32 Bit
.....	

输入/输出端口类型 Input/output port type

A	升降螺丝端子 Lifting terminal
T	弹片式端子 Shrapnel terminal

输出端保护方式 Output protection mode

N	无保护 Unprotected
C	浪涌抑制 Surge suppression
F	熔断保护 Fuse protection
R	浪涌抑制+熔断保护 Surge suppression+Fuse protection

工作电压 Working voltage

D5	5VDC
D12	12VDC
D24	24VDC

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前言 OVERVIEW

PLC放大板的用途

- 有效的扩展PLC的输出负载能力，PLC输出(或可编程单片机)由于接线方式及本身体积限制，不能做到大电流、高电压输出，所以需要外加扩展板来提高输出电流、电压、提升驱动负载能力。
- PLC输出端普遍不具备隔离、短路保护等功能，PLC放大板加入光电隔离或电磁隔离、短路保护、防浪涌等保护电路，有效保护PLC输出点及设备，防止电网干扰信号导致的误操作等。
- 可以任意控制直流或交流负载，设有公共节点后紧凑，方便接线、省空间、外观整洁漂亮、省材料省人工、既安全又可靠，是PLC输出的连接桥梁，常用来驱动电磁阀、接触器、小电机、液压阀等。

PLC amplifier board application

- Effectively expand the output load capacity of the PLC. Due to the wiring method and its own volume limitation, the PLC output cannot achieve large current and high voltage output. An expansion board is needed to increase the output current, voltage, and drive load capacity.
- The PLC output terminal does not have the function of isolation and short-circuit protection. The PLC amplifier board adds photoelectric isolation or electromagnetic isolation, short-circuit protection, anti-surge and other protection circuits to protect the PLC output point and equipment, and prevent misoperation caused by interference signals from the power grid.
- It can control DC or AC load. It is compact with public nodes, convenient for wiring, saving space, beautiful appearance, saving materials and labor, safe and reliable. It is a connection bridge for PLC output. It is often used to drive solenoid valves, contactors, small motors, Hydraulic valves, etc.

PLC类型与PLC放大板的选用

PLC输出为继电器，如何选配PLC放大板：

- 根据要控制设备直流或交流来选择，如果控制的设备是直流可选直流放大板或继电器模块；如果控制的设备是交流可选交流放大板或继电器模块；选择的PLC直流或交流放大板输入可以正控(24V)，也可以负控(0V)。

PLC输出为晶体管，如何选配PLC放大板：

- 根据要控制设备或交流来选择，如果控制的设备是直流可选直流放大板或继电器模块；如果控制的设备是交流可选交流放大板或继电器模块。
- PLC晶体管的输出分高电平(PNP型，24V)和低电平(NPN型，0V)，如果PLC输出高电平要选择PLC放大板正控(直流和交流放大板分正控和负控，继电器模块正控和负控通用)，如果PLC输出低电平要选择的放大板是负控。

Selection of PLC Type and PLC Amplifying Board

The PLC output is a relay, how to choose a PLC amplifier board:

- The device is a DC optional DC amplifier board or relay module; the device is an AC optional AC amplifier board or relay module; the selected PLC DC or AC amplifier board input can be positively controlled (24V) or negatively controlled (0V).

The PLC output is a transistor, how to choose a PLC amplifier board:

- The device is a DC optional DC amplifier board or a relay module; The device is an AC optional AC amplifier board or a relay module.
- The output of the PLC transistor is divided into high level (PNP type, 24V) and low level (NPN type, 0V). For the high level of PLC output, select the positive control of the PLC amplifier board (DC and AC amplifier boards are divided into positive control and negative control, The positive control and negative control of the relay module are common), if the PLC output low level, the amplifier board to be selected is the negative control.

选用PLC直流、交流放大板与继电器模块对比：

- 继电器模块：优点是不同公共点之间可带不同的交、直流负载，且电压也可不同，带负载电流可达5A/点或以上；输入端兼容PNP和PNP设计可适用任何款PLC(PLC是继电器或晶体管，是日系，欧美或国产)具有电磁隔离保护作用。
  缺点：因为是机械动作不适用于高频动作的负载，通过触点开关动作继电器的寿命一般是100万次(机械寿命)，动作滞后，响应时间为20ms。
- 直流或交流放大板：优点是适应于高频动作，响应时间短，噪音小，寿命长，适用于小功率开关信号传输如一些电磁阀等感性负载，用于高频脉冲信号输出高频动作，响应时间为0.2ms；使用成本较继电器模块低。
  缺点：一般负载能力(驱动电流)比继电器小，不能交叉控制直交流设备。

Comparison between PLC DC and AC amplifier boards and relay modules:

- Relay module advantages: Different AC and DC loads can be carried between different common points, and the voltage can also be different. The load current can reach 5A/point or more; the input terminal is compatible with PNP and PNP design and can be applied to any type of PLC. Electromagnetic isolation protection.
  Disadvantages: The mechanical action is not suitable for high-frequency action loads. The life of the relay is 1 million times (mechanical life) through the contact switch, the action is lagging, and the response time is 20ms.
- DC or AC amplifier board: suitable for high-frequency action, short response time, low noise, long life, suitable for low-power switch signal transmission, used for high-frequency pulse signal output, high-frequency action, response time is 0.2ms; low cost .
  Disadvantages: Generally, the load capacity is smaller than that of the relay, and the direct AC equipment cannot be cross-controlled.

适用范围 APPLICATION

- 用于扩展PLC的输出带负载的能力及起隔离保护作用，适用于安装在PLC、单片机工控板等控制器的数字量输出端，放大输出电压和电流，用于负载大功率交流设备。
- 在自动化设备中，要无触点开关代替通用继电器最为显著的特点是无电弧、开关动作频率高、无噪音、寿命长。采用过零关断，驱动交流电磁阀、接触器可使其动作更柔顺，产生的电磁干扰和电网波形畸变小。

- It is used to expand the output load capacity of the PLC and play a role of isolation protection. It is suitable for digital output terminals installed in PLCs, single-chip industrial control boards and other controllers to amplify the output voltage and current, and is used to load high-power AC equipment.
- In automation equipment, the most notable feature of replacing general-purpose relays with non-contact switches is that there is no arc, high switching frequency, no noise, and long life. Using zero-crossing shut-off, driving AC solenoid valve and contactor can make its action more compliant, resulting in less electromagnetic interference and power grid waveform distortion.