Value & Technology

NK1 Series PLC Manual

NK1-32CDR I/O Expansion Unit

[1st Edition]

KOYO ELECTRONICS (WUXI) CO., LTD.

Contents

Note：

The following is the documents list for all NK1 I/O expansion unit .

KEW-M2520A-1： The document for **NK1-08ND** I/O expansion unit**;**
KEW-M2520A-2： The document for **NK1-16ND** I/O expansion unit**;**
KEW-M2520A-3： The document for **NK1-32ND** I/O expansion unit**;**
KEW-M2520A-4： The document for **NK1-08CDR** I/O expansion unit**;**
KEW-M2520A-5： The document for **NK1-16CDR** I/O expansion unit**;**
KEW-M2520A-6： The document for **NK1-32CDR** I/O expansion unit**;**
KEW-M2520A-7： The document for **NK1-08TR** I/O expansion unit**;**
KEW-M2520A-8： The document for **NK1-16TR** I/O expansion unit**;**
KEW-M2520A-9： The document for **NK1-32TR** I/O expansion unit**;**
KEW-M2520A-10： The document for **NK1-08TD1** I/O expansion unit**;**
KEW-M2520A-11： The document for **NK1-16TD1** I/O expansion unit**;**
KEW-M2520A-12： The document for **NK1-32TD1** I/O expansion unit**;**
KEW-M2520A-13： The document for **NK1-08TD2** I/O expansion unit**;**
KEW-M2520A-14： The document for **NK1-16TD2** I/O expansion unit**;**
KEW-M2520A-15： The document for **NK1-32TD2** I/O expansion unit**;**
KEW-M2520A-16： The document for **NK1-08CDT1** I/O expansion unit**;**
KEW-M2520A-17： The document for **NK1-16CDT1** I/O expansion unit**;**
KEW-M2520A-18： The document for **NK1-32CDT1** I/O expansion unit**;**

1、Introduction

This document is the description of the hardware specifications, hardware performance, and external wiring of I/O expansion unit (NK1-32CDR) for NK1 series PLC. For specific use, please refer to the following materials:

"NK1 Series PLC User Manual"

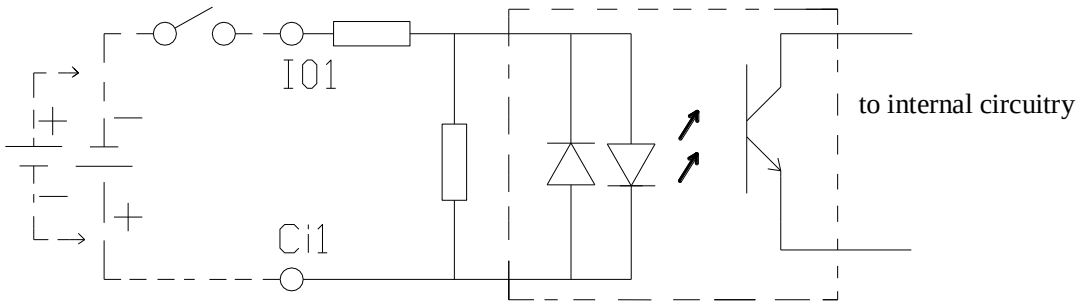
"NK1 Series PLC Programming Manual"

2、General Specifications

Items	Specifications
Dimensions(mm)	75L×102W×83H
Weight(g)	311
Power Consumption * (W)	4.7
External Supply 24 VDC current consumption	4mA/input point 10mA/relay output coil
*Note 1: The power consumption here includes the total power consumption of the expansion unit communication bus、internal logic circuits, and external 24 VDC。 *Note 2: Other general specifications of NK1 series PLC I/O expansion unit are the same as NK1 series PLC body.	

3、Input Specifications

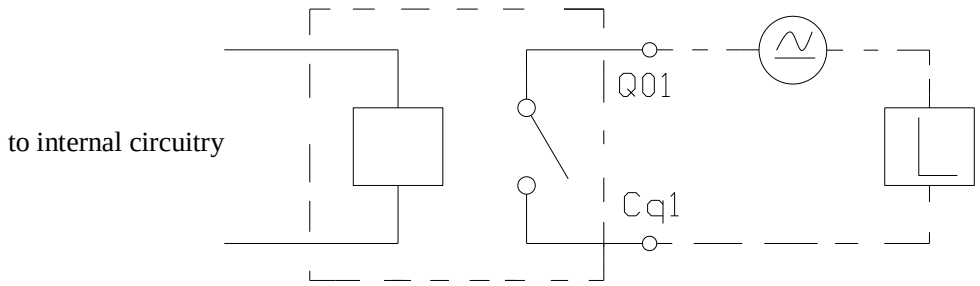
Input Equivalent Circuit



Items	Specifications
Number of Inputs per Module	16(sink/source)
Rated Input Voltage	24VDC
Maximum Input Voltage	≤30V DC
Input Current	4mA/point
Inrush Voltage	35V DC in 0.5s
ON Voltage Level	15V DC minimum
OFF Voltage Level	5V DC maximum
Operating Voltage	5~30V DC
Withstand Voltage	500V AC , in 1min (between input and internal signal ground)
Input Impedance	About 6KΩ
Isolation Type	Optocoupler isolation
OFF to ON response	≤5ms
ON to OFF response	≤5ms
Input Commons per Module	2 (isolated)
Terminal Type	Removable
Wire Size	14~28 AWG

4、Output Specifications

Output equivalent circuit



Item	Specifications
Number of Outputs per Module	16
Output Type	Relay, form A (SPST)
Operating Voltage	5~30V DC /5~250V AC（47~63Hz）
Inrush Current	7A when contacts are closed
On-state Contact Resistance	≤0.2Ω (new device)
Overload Protection	None（users need to add protection device）
Withstand Voltage	1500V AC，in 1min （between coil and contact） 750VAC，in 1min （between open contact）
Insulation Resistance	≥100MΩ (new device)
Max Load Current (Resistive)	2A/point 、6A/common
Output Commons per Module	2 (isolated)
Life of Contact（without load）	10，000，000
Life of Contact（rated load）	100,000
OFF to ON response	≤10ms
ON to OFF response	≤5ms
Terminal type (included)	Removable
Wire size	14~28 AWG

5、Wiring

5.1 Wiring Guideline

1) Use the shortest wiring route whenever possible.
2) Wire strictly according to the label on the terminal, do not mix the wires of different channels to avoid interference.
3) Do not run the signal wiring next to large motors, high current switches, or transformers. This may cause noise problems.
4) Users can choose the wiring method that suits them, but all wiring must meet the safety requirements to avoid accidental danger. The protective grounding terminal of expansion units should be connected to the protective grounding terminal of the main unit for reliable grounding.

5.2 Power Supply

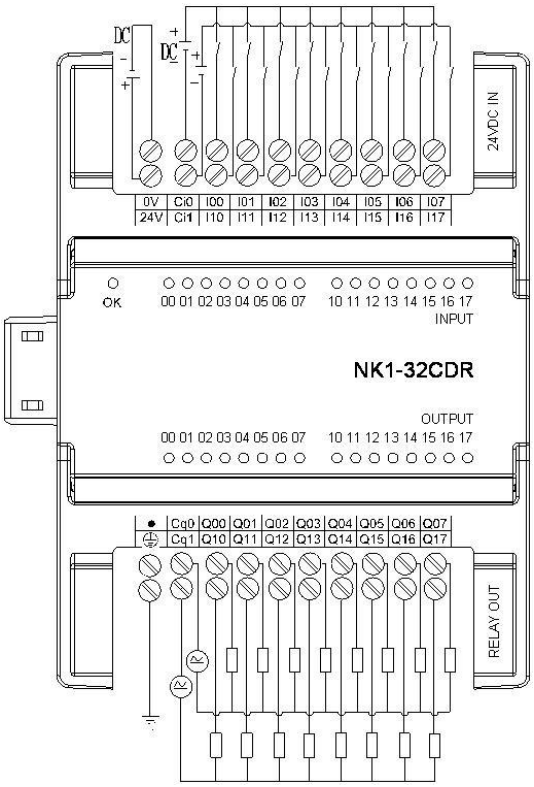
The NK1-32CDR expansion unit requires at least one 24VDC external power supply. The same or separate power sources can be used for the expansion unit supply and the sensor supply.

The NK1 series PLC main unit has a built-in 24VDC power supply that provide up to 300mA of current. This can be used for the expansion unit supply if not exceeding the power budget.

In some application systems, it may be designed to use the sensor power separately from the power of the expansion unit. At this time, the negative terminal of the sensor power supply should be connected to the negative terminal of the working power supply of the expansion unit to not affect the normal operation of the expansion unit.

Note: If the built-in 24VDC power is used, be sure to calculate the power budget. Exceeding the power budget can cause unpredictable system operation.

5.3 Wiring Diagram



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