

PLC-R...21HC

PLC INTERFACE With SPDT Relay, High-Current Version

INTERFACE

Data Sheet
100221_03_en

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Description

A number of applications such as electrical heating systems require higher continuous load currents than miniature relays can carry and switch.

Long Electrical Service Life

The above-average service life of the contacts is particularly noticeable in the mid-load range when compared with less powerful relays. On average, the interval between servicing can be doubled or tripled, thus reducing costs.

Rugged SPDT Relay for Higher Loads

The abbreviation "HC" in the designation stands for "High Current" applications with up to 10 A continuous current. The block contains a 16 A power relay with PDT contact application, so that additional reserves are used if overdimensioning occurs, e.g., in the event of temporary overload. The relay is secured against vibration by a captive retaining bracket and can be replaced if it becomes worn without having to remove the wiring. The relay is sealed with RTII protection to protect the relay mechanics against external influences such as dust.

Vibration-Resistant Plug-In Bridge System Reduces the Amount of Wiring Required

Another feature of the PLC series is the FBST 500 plug-in bridge system, which can be cut to any length. It can be plugged into the control and/or contact side "with a click" and snapped into place to ensure vibration-resistant connection. Up to 35 PLCs can be clearly connected "to the block" within seconds, without any errors.

Additional user-friendly wiring is provided by the contact connections arranged in pairs, if more than one conductor has to be connected per contact.

Additional PLC Advantages

- Marking labels from the standard modular terminal block range
- Many other electromechanical relays and electronic solid-state relays are available in the PLC series
- Quick connection with protection against polarity reversal of eight PLCs to the control system via PLC-V8 adapter and system cable
- High-quality, vibration-resistant Phoenix Contact connection method





Make sure you always use the latest documentation.
It can be downloaded at www.download.phoenixcontact.com.

A conversion table is available on the Internet at
www.download.phoenixcontact.com/general/7000_en_00.pdf.



This data sheet is valid for all products listed on the following page.

Ordering Data

| Description | Type | Order No. | Pcs./Pck. |
|---|--------------------------------|--------------------|-----------|
| PLC INTERFACE With Screw Connection | | | |
| PLC INTERFACE with SPDT relay, high-current version, comprising PLC-BSC-... basic terminal block and plug-in miniature relay (see INTERFACE catalog), for assembly on  . | 12 V DC | PLC-RSC- 12DC/21HC | 2967617 |
| | 24 V DC | PLC-RSC- 24DC/21HC | 2967620 |
| | 24 V AC/DC | PLC-RSC- 24UC/21HC | 2967633 |
| | 48 V DC | PLC-RSC- 48DC/21HC | 2967646 |
| | 60 V DC | PLC-RSC- 60DC/21HC | 2967659 |
| | 120 V AC/110 V DC | PLC-RSC-120UC/21HC | 2967662 |
| | 230 V AC/220 V DC ¹ | PLC-RSC-230UC/21HC | 2967675 |
| PLC INTERFACE With Spring-Cage Connection | | | |
| PLC INTERFACE with SPDT relay, high-current version, comprising PLC-BSC-... basic terminal block and plug-in miniature relay (see INTERFACE catalog), for assembly on  . | 12 V DC | PLC-RSP- 12DC/21HC | 2912264 |
| | 24 V DC | PLC-RSP- 24DC/21HC | 2912277 |
| | 24 V AC/DC | PLC-RSP- 24UC/21HC | 2912280 |
| | 48 V DC | PLC-RSP- 48DC/21HC | 2912293 |
| | 60 V DC | PLC-RSP- 60DC/21HC | 2912303 |
| | 120 V AC/110 V DC | PLC-RSP-120UC/21HC | 2912316 |
| | 230 V AC/220 V DC ¹ | PLC-RSP-230UC/21HC | 2912329 |

¹ The PLC-ATP BK insulating plate must be installed for voltages greater than 250 V (L1, L2, L3) between the same terminal points on adjacent modules (see "Accessories"). FBST 8-PLC... or FBST 500... is then used for potential bridging.

Accessories

| Description | Type | Order No. | Pcs./Pck. |
|------------------|------------|-----------|-----------|
| Insulating plate | PLC-ATP BK | 2966841 | 25 |



The PLC-ATP BK insulating plate should be used in the following cases: always fit at the start and end of a PLC terminal strip for voltages greater than 250 V (L1, L2, L3) between the same terminal points on adjacent modules (FBST 8-PLC... or FBST 500... can be used for potential bridging) and for safe isolation between adjacent modules.

For additional accessories such as power terminal blocks and plug-in bridges, please refer to the INTERFACE catalog or www.phoenixcontact.com.

Technical Data

| Input Data | ...12DC... | ...24DC... | ...24UC... | ...48DC... | ...60DC... | ...120UC... | ...230UC... |
|--|---|------------|------------|------------|------------|-----------------------|-----------------------|
| Nominal input voltage U_N ¹ | 12 V DC | 24 V DC | 24 V AC/DC | 48 V DC | 60 V DC | 120 V AC/ 110 V DC | 230 V AC/ 220 V DC |
| Permissible range (with reference to U_N) | See "Operating Voltage Ranges" on page 4 | | | | | | |
| Typical input current at U_N | 33 mA | 18 mA | 17.5 mA | 20 mA | 10 mA | 4.5 mA/ 4.2 mA | 4.5 mA/ 4.3 mA |
| Typical response time at U_N | 8 ms | | | | | 7 ms | |
| Typical release time at U_N | 10 ms | | | | | | |
| Input circuit | Yellow LED, protection against polarity reversal, free-wheeling diode | | | | | | |
| DC | Yellow LED, bridge rectifier | | | | | | |
| AC/DC | Yellow LED, bridge rectifier | | | | | | |

¹ The PLC-ATP BK insulating plate must be installed for voltages greater than 250 V (L1, L2, L3) between the same terminal points on adjacent modules (see "Accessories"). FBST 8-PLC... or FBST 500... is then used for potential bridging.

Output Data

| | |
|-----------------------------|---|
| Contact type | Single contact, SPDT |
| Contact material | AgNi |
| Maximum switching voltage | 250 V AC/DC ¹ |
| Minimum switching voltage | 12 V AC/DC |
| Limiting continuous current | 10 A (6 A) ² |
| Maximum inrush current | 30 A (300 ms) |
| Minimum switching current | 100 mA |
| Maximum shutdown power | Ohmic load t = 0 ms |
| | 24 V DC 240 W (144 W) ² |
| | 48 V DC 58 W |
| | 60 V DC 48 W |
| | 110 V DC 50 W |
| | 220 V DC 80 W |
| | 250 V AC 2500 VA (1500 VA) ² |
| Minimum switching power | 1.2 W |

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² The values in brackets are for connections 12. If connections 12 are bridged, the values in brackets apply.

General Data

| | |
|--|---|
| Impulse voltage withstand level | 6 kV |
| Ambient temperature range | |
| Operation | -25°C ... +60°C (230 V type -25°C ... +55°C) |
| Storage/transport | -25°C ... +70°C (230 V type -40°C ... +85°C) |
| Nominal operating mode | 100% operating factor |
| Inflammability class according to UL 94 (housing) | V0 |
| Mechanical service life | 3 x 10 ⁷ cycles |
| Air and creepage distances between the circuits ¹ | IEC 60664, IEC 60664 A, DIN VDE 0110, DIN EN 50178/VDE 0106-160, IEC 60255/DIN VDE 0435 |
| Pollution degree | 3 |
| Surge voltage category | III |
| Mounting position | Any |
| Mounting | Can be aligned without spacing |
| Conductor cross-section | |
| Screw connection, solid and stranded | 0.14 mm ² ... 2.5 mm ² (26 - 14 AWG) |
| Spring-cage connection, solid and stranded | 0.2 mm ² ... 2.5 mm ² (26 - 14 AWG) |
| Stripping length | 8 mm |
| Dimensions (W x H x D) | 14 mm x 94 mm x 80 mm |
| Housing material | Polybutylene terephthalate PBT non-reinforced, green |

¹ The PLC-ATP BK insulating plate must be installed for safe isolation between adjacent modules (see "Accessories"). FBST 8-PLC... or FBST 500... is then used for potential bridging.

Tests/Approvals

| | |
|----|---|
| CE |  |
| UL |  |
| GL |  |

Block Diagram

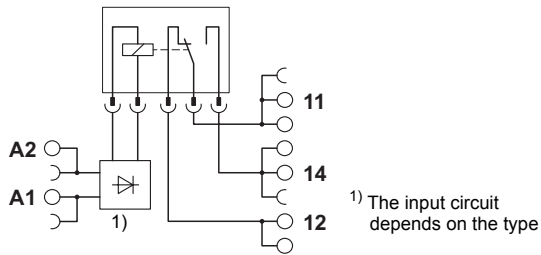


Figure 1 Block diagram

Operating Voltage Ranges

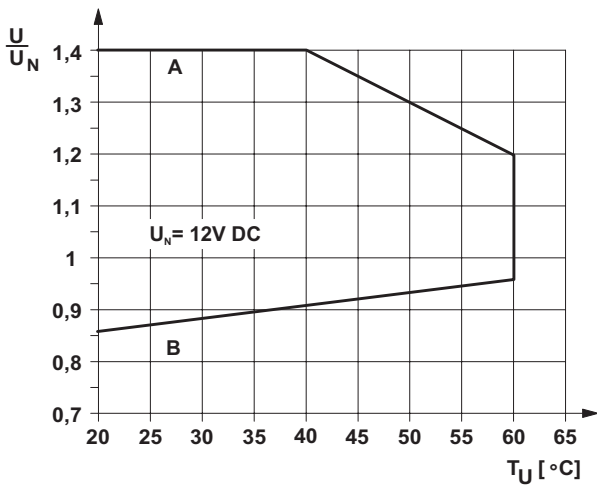


Figure 2 Operating voltage range for 12 V DC

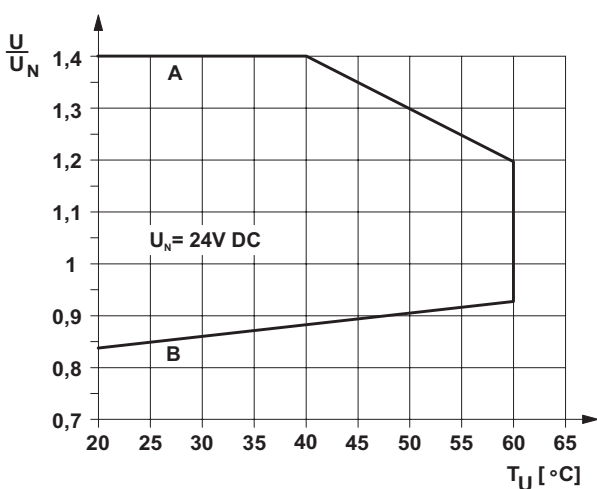


Figure 3 Operating voltage range for 24 V DC

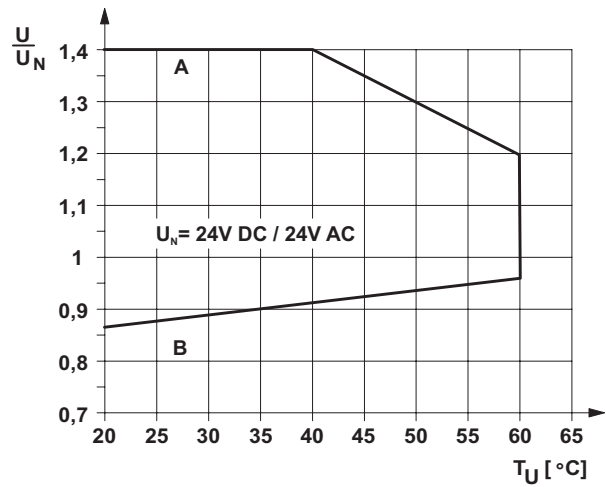


Figure 4 Operating voltage range for 24 V AC/DC

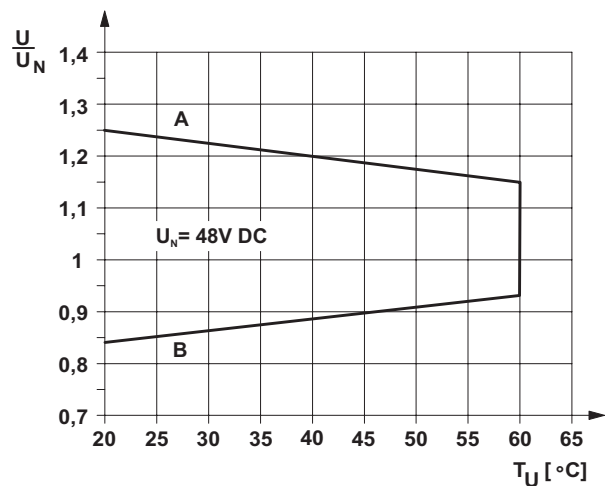


Figure 5 Operating voltage range for 48 V DC

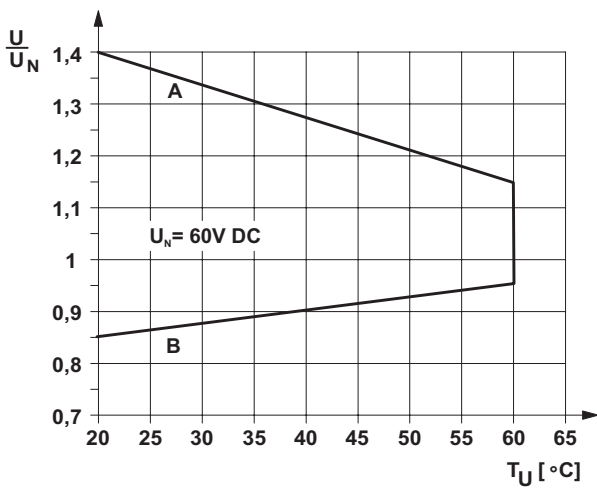


Figure 6 Operating voltage range for 60 V DC

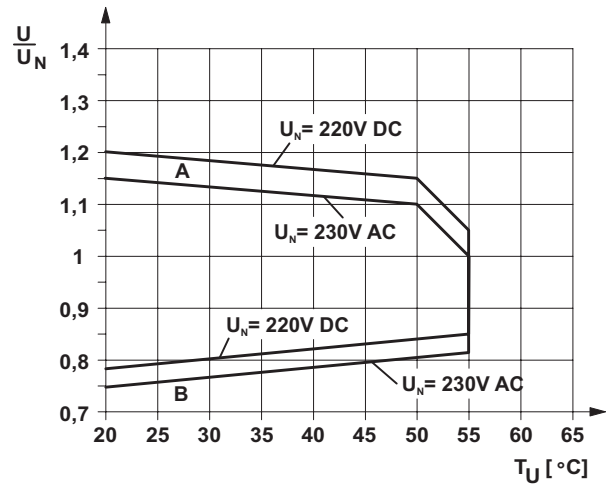


Figure 8 Operating voltage range for 230 V AC/DC

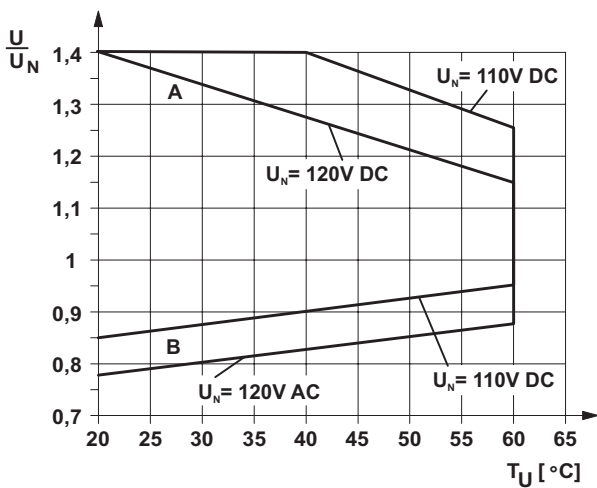


Figure 7 Operating voltage range for 120 V AC/DC

General Conditions

Direct alignment in the block, all devices 100% operating factor, horizontal or vertical mounting.

Curve A

Maximum permissible continuous voltage U_{max} with limiting continuous current on the contact side

Curve B

Minimum permissible operate voltage U_{op} following pre-excitation