PLC-RSP…21HC/RW

PLC-INTERFACE With 1 PDT Relay for Railway Applications in Accordance With EN 50155, High-current Version

Data Sheet
103119_en_02

1 Description

The 14 mm slim relay series **PLC-RSP…21HC/RW** has been especially developed for railway applications and is certified according to EN 50155. The modules available with input voltages of 24 V, 72 V and 110 V (further voltages on request) meet the trend towards energy, weight, and space saving in railway technology.

1.1 Wide-range Electronics Minimize Self-heating

In contrast to other manufacturer's relay modules PLC-RSP…21HC/RW has a special wide-range input voltage, similar to those in switched-mode power supply units, offering considerable advantages:

– Control voltage range from 70 % to 125 % of the nominal voltage throughout the entire temperature and loadrange
– Very low self-heating even with increased control voltage
– Wider ambient temperature range from -40 °C to +70 °C throughout the entire control voltage and load range

Furthermore, the modules are equipped with an RCZ filter and surge protection on the input side, to ensure high operational safety and resistance to interference.

> **i** Make sure you always use the latest documentation.
> It can be downloaded at www.phoenixcontact.net/catalog.

> **i** This data sheet is valid for all products listed on the following page:

PHŒNIX CONTACT

INSPIRING INNOVATIONS

1.2   Robust 1 PDT Relay for High Loads

The abbreviation "HC" in the designation stands for "High Current" applications, 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. with short-term overloads. The relay is secured against vibration by a retaining bracket and can be exchanged if it becomes worn, without removing the wiring. The relay is sealed in accordance with degree of protection RTII to protect the relay mechanics against external influences such as dust.

1.3   Vibration-resistant Plug-in Bridge System Reduces the Wiring

Another feature of the PLC series is the FBST 500 plug-in bridge system that 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 a vibration-free connection. Up to 35 PLCs can be clearly connected "to the block" within seconds, without any errors.

1.4   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, polarized connection of eight PLCs with control via PLC-V8 adapter and system cable
– High-quality, vibration proof Phoenix Contact connection method

2   Ordering Data

PLC-INTERFACE With Power Contact

Description	Type	Order No.	Pcs./Pck.
PLC-INTERFACE with 1 PDT relay for railway applications in accordance with EN 50155, input voltage 24 V DC, high-current version	PLC-RSP- 24UC/21HC/RW	2987079	10
PLC-INTERFACE with 1 PDT relay for railway applications in accordance with EN 50155, input voltage 72 V DC, high-current version	PLC-RSP- 72UC/21HC/RW	2987082	10
PLC-INTERFACE with 1 PDT relay for railway applications in accordance with EN 50155, input voltage 110 V DC, high-current version	PLC-RSP-110UC/21HC/RW	2987095	10

Accessories

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

i	Partition plate PLC-ATP BK is to 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.

Further accessories such as power terminal and plug-in bridges can be found in the **INTERFACE** catalog and at www.phoenixcontact.net/catalog.

3 Technical Data

Input Data	PLC-...24UC...	PLC-...72UC...	PLC-...110UC...
Nominal input voltage U_N	24 V DC	72 V DC	110 V DC
Permissible range (with reference to U_N)	0.7 ... 1.25 x U_N		
Typical input current at U_N	12 mA	5,9 mA	4 mA
Typical response time at U_N	8 ms		
Typical release time at U_N	11 ms		
Input circuit	LED, wide-range electronics, free-wheeling diode, surge protection, bridge rectifier, RCZ filter		

Output Data	
Contact type	Single contact, 1 PDT
Contact material	AgNi
Maximum switching voltage	250 V AC/DC[1]
Minimum switching voltage	12 V AC/DC
Limiting continuous current	10 A with inserted plug-in bridge FBST 14-PLC BK (Order No. 2967691)
Maximum inrush current	30 A (300 ms)
Minimum switching current	10 mA
Maximum power rating	Ohmic load t = 0 ms
24 V DC	240 W
48 V DC	58 W
60 V DC	48 W
110 V DC	50 W
220 V DC	75 W
250 V AC	2500 VA

[1] The PLC-ATP BK partition 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.

General Data	
Rated surge voltage	6 kV
Ambient temperature range	-40 °C... 70 °C (temperature class TX)
Nominal operating mode	100% operating factor
Inflammability class according to UL 94 (housing)	V0
Mechanical service life	3×10^7 cycles
Air and creepage distances between circuits	DIN EN 50178 (safe isolation: control/contact side)
Pollution degree	2
Surge voltage category	III
Mounting position	Any
Installation location/category	On vehicle body/category 1, class B
Mounting	Can be aligned without spacing
Connection method	Spring-cage connection
Conductor Cross Section	
Solid	$0.2 \ mm^2$ ... $2.5 \ mm^2$
Stranded	$0.2 \ mm^2$ ... $2.5 \ mm^2$
Dimensions (W x H x D)	14 mm x 94 mm x 80 mm
Housing material	Polybutylene terephthalate PBT non-reinforced, green

Tests/Approvals	
EN 50155, EN 61373, EN 50121	Yes
CE	CE
UL, GL	ᶜ(UL)ᵤₛ ᶜ🆁🅽ᵤₛ (GL)

4   Block Diagram

*) wide-range electronics
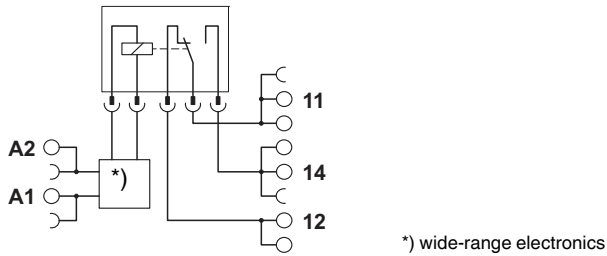
Figure 1   Block diagram

7   Service Life Reduction Factor

5   Power Rating

❶ AC, ohmic load
❷ DC, ohmic load
❸ DC, L/R = 40 ms
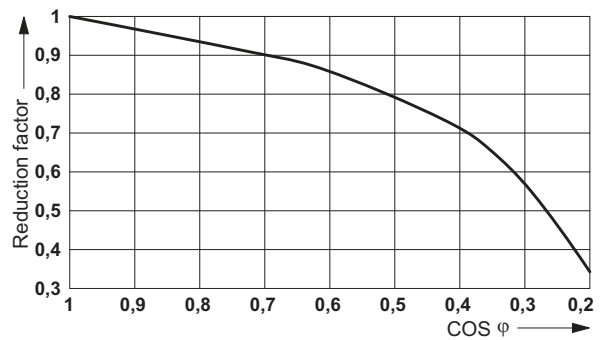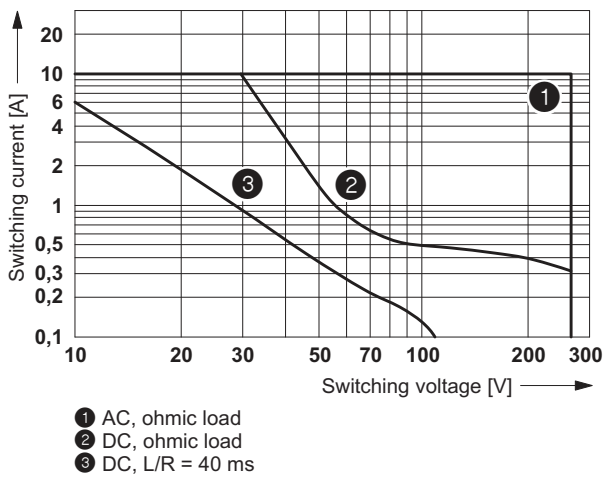
6   Electrical Service Life

❶ 250 V AC, ohmic load (DC coils)
❷ 250 V AC, ohmic load (AC coils)