Two hand control relay HR-2001

Duelco Safety Technique

Two-hand control relay HR-2001

- Easy installation and maintenance
- Safety category 4 acc. to EN 954-1 Type IIIC (EN 574)
- Status-/fault indication via LEDs
- 2 NO safety outputs
- 1 transistor or 1 NC status output
- Short circuit monitoring
- Available with 230VAC supply voltage

APPROVALS

Authority	Underwriters Laboratories
HR-2001	●

Authority	BG
HR-2001	●

c UL us LISTED

BG A-ET

● Approved

SAFETY CATEGORY, EN 954-1 / EN 574: 4 / IIIC CE

What can the new Duelco two-hand relay **HR-2001** offer you?

- **Simplicity**
  Fast and easy installation via user friendly connection examples
- **Two-hand control relay for dangerous work processes such as punching or pressing**
- **Easy maintenance -> Time saving**
  Detachable terminals make installation easier, reduces time for replacement and reduces the risk of incorrect wiring. The internal PTC fuse regenerates itself if an error should occur, which result in short breakdowns
- **Verification of the operation of both control switches within max. 0.5s**
- **Status-/fault indication**
  LEDs for indication of the status of the internal relays, the outputs and the supply. The LED signalling can reduce trouble shooting time.

With the new design and a simple and safe layout, the Duelco **HR-2001** is the right choice!

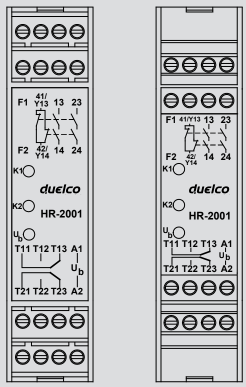
Technical facilities regarding safety requirements:

- √ Forced contacts
- √ Two-pole input terminals for activation contacts, monitored for short circuit by PTC-fuse.
- √ 2 NO contacts
- √ 1 transistor or 1 NC signalling output

User's advantages:

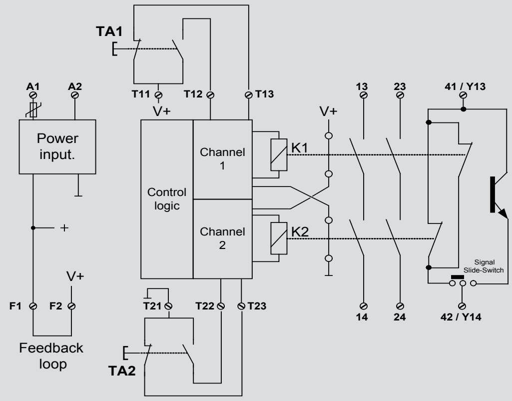
- √ Safety category 4 cf. EN 954-1 and IIIC cf. EN 574
- √ Monitoring of external contacts (F1-F2)
- √ 2 NO contacts, AC1: 230 V AC / 6A ; DC1: 24V / 6A
- √ 1 transistor output 5-30 VDC (max. 20 mA) or 1 NC contact 24VDC/2A (slide switch selection)
- √ Voltage versions: 24 VDC, 24VAC, 48VAC, 115VAC and 230VAC
- √ Design is based on the european standard, EN 60204-1/EN 574
- √ 22,5 mm slimline housing with fixed or detachable terminals
- √ LED indication for power, channel 1 and channel 2
- √ Complies with MD, EMC, LVD (98/37/EC, 89/336/EEC & 93/68/EEC)

Front layout



HR-2001D HR-2001F

Block diagram



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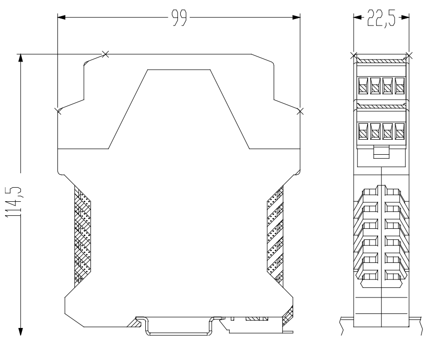
Operation description

Operating voltage must be connected to the terminals A1(+) and A2(-). With terminals F1 and F2 short-circuited, the monitoring and control circuit will be activated.
In this condition the output contacts 13-14, 23-24 are open and the NC contact 41-42 / transistor output Y13-Y14 is closed / non-conductive.
After operation of the two contact sets TA1 and TA2 - each consisting of one set of forced make and break contacts in channel 1 (T11, T12, T13) and channel 2 (T21, T22, T23), HR-2001 activates. I.e. the current paths 13-14 and 23-24 are closed while the NC contact 41-42 / transistor output Y13-Y14 is open / conductive. The LEDs K1 and K2 illuminates. The time period between operation of TA1 and TA2 is max. 500 ms. This period is a requirement of the present standards.
Contact sets TA1 and TA2 ensure that faults such as a welded contact or a short circuit in or between contact sets will be registered by the monitoring circuit. This makes restart impossible until the fault is rectified and the two hand relay HR-2001 is back in its dwell position.

Dimensions



Order information

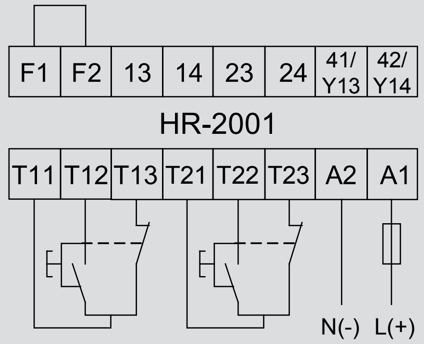
HR-2001	Article no.
24 VDC, fixed terminals (F)	*42401001*
24 VDC, detachable terminals (D)	*42401101*
24 VAC, fixed terminals (F)	*42401301*
24 VAC, detachable terminals (D)	*42401401*
48 VAC, fixed terminals (F)	*42401608*
48 VAC, detachable terminals (D)	*42401618*
115 VAC, fixed terminals (F)	*42401501*
115 VAC, detachable terminals (D)	*42401601*
230 VAC, fixed terminals (F)	*42401623*
230 VAC, detachable terminals (D)	*42401624*

Technical data HR-2001 (24VDC supply voltage)

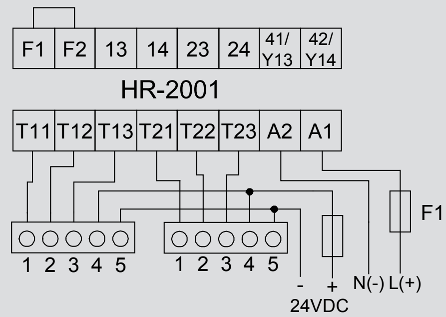
Supply voltage (NB! From one common supply):	24 VDC
Supply tolerance:	± 10%
Fuse, Power supply: Outputs:	T315 mA F 6 A
Max. ripple, DC:	± 1V
Max. inrush current, supply DC:	<2 A within 4 ms
Consumption:	~ 2,0 VA
# NO / NC / CO:	4 / 0 / 0
Contact material:	A Alloy + 0,2-0,4 µm Au
Max. contact voltage:	250 VAC / 24 VDC
Max. contact current:	6A AC / 6A DC; Cos = 1; @20°C
Max. effect, 13-14, 23-24, 41-42:	1500 VA
Max. inrush current, output contacts:	30 A < 20 ms.
Cut-in time:	<20 ms.
Cut-out time by voltage drop-out (Ub.):	<120 ms.
Cut-out time by deactivations of buttons:	<20 ms.
Transistor output:	Y13-Y14: 5-30V / Max. 20 mA
Max. overall cable resistance, input terminals:	< 22 Ω
Status indication:	3 x LED
Enclosure, Housing / Terminals:	IP40 / IP20
Enclosure material:	Polyamide PA 6.6
Temperature, Operation / Stock:	0 - 50°C / -30 - 70 °C
Max. crosssection of conductor, Solid thread / Multiwire with ferrule:	1 x 2,5 mm² / 1 x 2,5 mm²
Weight DC:	~ 185 g
Mounting, DIN-rail / Mounting bracket:	DIN EN 50022-35 / M4 (2 pieces)
Terminal tightening torque:	<1 Nm
Dimensions, WxHxD (mm):	22,5 x 99 x 114,5
Mechanical lifetime (number of activations):	>10 millions
Insulation class:	4kV/2, VDE 0110-1 / -2
EMC requirements:	EN 61000-6-3 EN 61000-6-2

Connection examples

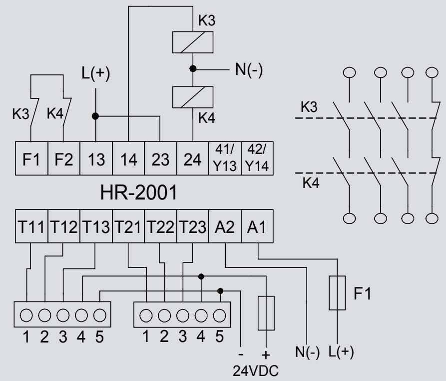
1. General application



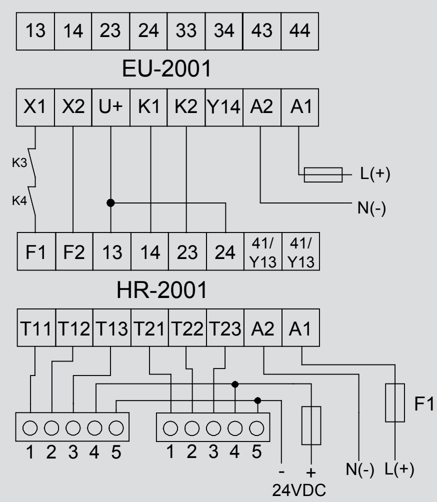
2. HR-2001 connected to TST-2/3 hand sensor actuator



3. HR-2001 connected to TST-2/3 and external contacts



4. HR-2001 connected to extension module EU-2001



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