

Timer and switching relays

Multi-function DZD 92 L

interface

Multi-function multi-range timer relay

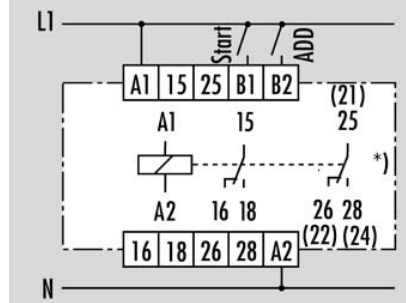
- Single voltage
- 8 functions
- Setting range from 0.05 s to 100 h divided into 7 time ranges
- 1 instantaneous and 1 timed change-over contact or 2 timed changeover contacts (selectable)



Circuit diagram

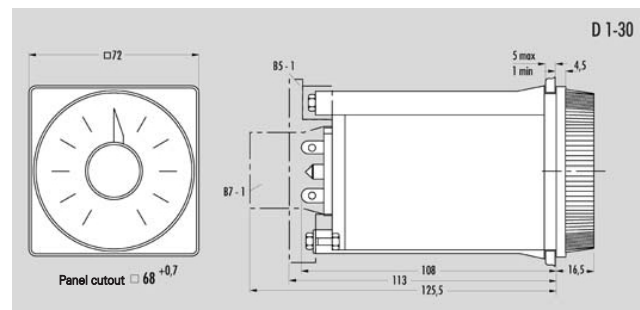
DZD 92 L

KS 0323/1



*) Instantaneous contacts have other terminal designations (e.g. 21 instead of 25)

Dimension diagram



Displays

B1		s	B1	LED red, lights up when the energizing quantity is applied
B2		m	B2	LED red, lights up when the energizing quantity for the additive operation is applied
K		h	K	LED red, lights up when the time contact is switched over
s; m; h				red LEDs for the range display, indicates the selected time range and flashes during countdown
				3-digit LED display for the selected setpoint value, or for the display of the actual value during countdown

Function

The functions, time ranges and contact assignments are set by means of a dual in-line switch located at the rear of the device (see "Settings").
 Infinitely variable time setting within a range is selected by means of a transparent rotary switch.
 The selected setpoint value is digitally indicated on a 3-digit LED display (with 7 segments).
 The current actual value is displayed analog (with 11 LEDs above the scale values) and also digitally (on an LED display).

Functionen:

- | | |
|----------------------------------|-------|
| • ON-delay | (AV) |
| • OFF-delay | (RV) |
| • Interval ON | (EW) |
| • Interval OFF | (AW) |
| • ON-delay and OFF-delay | (ARV) |
| • One shot | (IF) |
| • Repeat cycle starting with OFF | (TP) |
| • Repeat cycle starting with ON | (TI) |

Time ranges

Setting range from 0.05 s to 10 h divided into:

0.05 s ... 1 s	3 min ... 1 h
0.5 s ... 10 s	30 min ... 10 h
3 s ... 1 min	0.05 h ... 1 h
30 s ... 10 min	5 h ... 100 h

Accessories

Female connector plate	B 5	for panel and surface mounting
Pin holder	B 7	for panel mounting
Cover	DA 1	for panel cutout
Lockable cover	V 4	
Seal	Z 1	for panel mounting

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Function diagrams		Function diagrams	
DZD 92 L ON-delay (AV) FD 127/1 <p>t_A = operating time</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>	DZD 92 L Interval ON additive (EW) FD 127/6 <p>$t_{WE} = \sum t_{WEX}$</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>		
DZD 92 L ON-delay additive (AV) FD 127/2 <p>$t_A = \sum t_{AX}$</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>	DZD 92 L Interval OFF (AW) FD 127/7 <p>t_{WA} = selected interval OFF time</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>		
DZD 92 L OFF-delay (RV) FD 127/3 <p>t_R = selected returning time</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>	DZD 92 L Interval OFF additive (AW) FD 127/8 <p>$t_{WA} = \sum t_{WAX}$</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>		
DZD 92 L OFF-delay additive (RV) FD 127/4 <p>$t_R = \sum t_{RX}$</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>	DZD 92 L ON-delay and OFF-delay (ARV) FD 127/9 <p>t_A = selected interval OFF time t_R = selected returning time</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>		
DZD 92 L Interval ON (EW) FD 127/5 <p>t_{WE} = selected interval ON time</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>	DZD 92 L ON-delay and OFF-delay additive (ARV) FD 127/10 <p>$t_A = \sum t_{AX} = t_R = \sum t_{RX}$</p> <p>Program switches (1 instantaneous and 1 timed change-over contact)</p>		

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Function diagrams

DZD 92 L One shot (IF) FD 127/11

A1/A2 Supply voltage
 B1 Energizing quantity, LED (B1) red
 B2 Additive operation, LED (B2) red
 15/18 (25/28) Delayed contact
 15/16 (25/26) LED (K) red
 21/24 Instantaneous change-over contact
 21/22

t_A = selected operating time

Program switches
 (1 instantaneous and 1 timed change-over contact)

ON

DZD 92 L One shot (IF) FD 127/12

A1/A2 Supply voltage
 B1 Energizing quantity, LED (B1) red
 B2 Additive operation, LED (B2) red
 15/18 (25/28) Delayed contact
 15/16 (25/26) LED (K) red
 21/24 Instantaneous change-over contact
 21/22

t_A = selected operating time $t_A = \sum_{i=1}^n t_{ix}$

Program switches
 (1 instantaneous and 1 timed change-over contact)

ON

DZD 92 L Repeat cycle starting with OFF (TP) FD 127/13

A1/A2 Supply voltage
 B1 Energizing quantity, LED (B1) red
 B2 Additive operation, LED (B2) red
 15/18 (25/28) Delayed contact
 15/16 (25/26) LED (K) red
 21/24 Instantaneous change-over contact
 21/22

t_i = ON time
 t_p = OFF time

Program switches
 (1 instantaneous and 1 timed change-over contact)

ON

DZD 92 L Repeat cycle starting with OFF additive (TP) FD 127/14

A1/A2 Supply voltage
 B1 Energizing quantity, LED (B1) red
 B2 Additive operation, LED (B2) red
 15/18 (25/28) Delayed contact
 15/16 (25/26) LED (K) red
 21/24 Instantaneous change-over contact
 21/22

t_i = ON time
 t_p = OFF time $t_i = \sum_{i=1}^n t_{ix} = t_p = \sum_{i=1}^n t_{px}$

Program switches
 (1 instantaneous and 1 timed change-over contact)

ON

DZD 92 L Repeat cycle starting with ON (TI) FD 127/15

A1/A2 Supply voltage
 B1 Energizing quantity, LED (B1) red
 B2 Additive operation, LED (B2) red
 15/18 (25/28) Delayed contact
 15/16 (25/26) LED (K) red
 21/24 Instantaneous change-over contact
 21/22

t_i = ON time
 t_p = OFF time

Program switches
 (1 instantaneous and 1 timed change-over contact)

ON

Function diagrams

DZD 92 L Repeat cycle starting with ON additive (TI) FD 127/11

A1/A2 Supply voltage
 B1 Energizing quantity, LED (B1) red
 B2 Additive operation, LED (B2) red
 15/18 (25/28) Delayed contact
 15/16 (25/26) LED (K) red
 21/24 Instantaneous change-over contact
 21/22

t_i = ON time
 t_p = OFF time $t_i = \sum_{i=1}^n t_{ix} = t_p = \sum_{i=1}^n t_{px}$

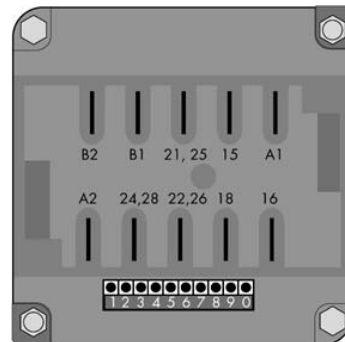
Program switches
 (1 instantaneous and 1 timed change-over contact)

ON

t_1 = must be > recovery time 1
 t_2 = must be > recovery time 2
 t_3 = make time, must be > minimum ON time

Settings

The functions, time ranges and contact assignments are set by means of a dual in-line switch with 10 ON/OFF DIP switches located at the rear of the device.



Position of the switches	Resolution	1	2	3	4	5	6	7	8	9	0
Time range	Resolution										
0.05 s to 1 s	0.01 s	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>							
0.5 s to 10 s	0.05 s	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>							
3 s to 1 min	0.5 s	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>							
30 s to 10 min	5 s	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>							
3 min to 1 h	0.5 min	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>							
30 min to 10 h	5 min	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>							
5 h to 100 h	0.5 h	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>							
Function											
ON-delay time				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
OFF-delay				<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>					
Interval ON				<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>					
Interval OFF				<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>					
ON-delay and OFF-delay				<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>					
One shot				<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>					
Repeat cycle starting with OFF				<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>					
Repeat cycle starting with ON				<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>					
Contacts											
1 timed and 1 instantaneous change-over contact									<input type="radio"/>		
2 timed change-over contact									<input checked="" type="radio"/>		

Position of the switches: ● = ON (cam lever up), switches 8 to 0 are not used

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Technical data	DZD 92 L
Function type according to IEC 60050 (445)	Analog adjustable multi-function relay for single voltage – ON-delay timer relay – OFF-delay timer relay with supply voltage – Interval ON relay – Interval OFF relay – ON-delay and OFF-delay timer relay – One shot – Repeat cycle
Function display	6 LEDs red, 3-digit LED display red, digit size 7.6 mm
Power supply circuit	
Rated voltage U_N	See "Overview of devices"
Rated consumption at 50 Hz and UN (AC)	4.7 VA / 4.6 W
Rated consumption DC	2.6 W
Rated frequency	50 – 60 Hz
Operating voltage range	0.8 to 1.1 x U_N
Rated current of the energizing quantity (B1)	8 mA
Time circuit	
Time setting / number of time ranges	analog/7
Available setting range	See table "Time ranges"
Response time of the energizing quantity (B1)	≤ 20 ms; ≤ 2 ms at 24 V DC
Release time of the energizing quantity (B1)	≤ 20 ms; ≤ 3 ms at 24 V DC
Recovery time	$\leq 40 / \leq 60$ ms; $\leq 40 / \leq 10$ ms at 24 V DC
Minimum on time	≤ 40 ms; ≤ 5 ms at 24 V DC
Release value	≤ 15 % UN
Parallel loads permissible	yes
Internal half-wave rectification	no
Mean value of the error	≤ 1 % ± 10 ms
Dispersion	$\leq \pm 0.5$ % ± 10 ms
Influence of the energizing quantity, supply voltage	≤ 0.005 % / % ΔU_N
Influence of the ambient temperature	≤ 0.005 % / K
Output circuit	
Contact assignment	1 instantaneous and 1 timed change-over contact or 2 timed change-over contacts
Contact material	Ag alloy, gold-plated
Rated operating voltage U_n	250/300 V AC/DC
Max. continuous current I_n	5 A
Application category according to EN 60947-5-1:1991	AC-15: U_o 230 V AC, I_o 2 A DC-13: U_o 24 V DC, I_o 2 A
Permissible switching frequency	≤ 6000 switching cycles/h
Mechanical life	30×10^6 switching cycles
Response time	ca. 10 ms
Release time	ca. 10 m
General information	
Creepage distances and clearances between the circuits	according to DIN VDE 0110-1:04.97
Rated impulse voltage	4 kV
Overvoltage category	III
Degree of pollution	3 outside, 2 inside
Rated voltage	250 V AC
Test voltage U_{eff} 50 Hz according to DIN VDE 0110-1, table A.1	2.21 kV
Protection degree housing/terminal according to DIN VDE 0470 sec. 1:11.92	IP 30 / IP 20
Noise immunity according to IEC 61000-4	Test severity 3
Ambient temperature, operating range	-20 – +60 °C
Weight	0.4 kg
Accessories	B 5, B 7, DA 1, V 4, Z 1
Approvals	-

Overview of the devices/Part numbers				
Type	ON-delay time	Rated voltage	Part No.	Std. Pack
DZD 92 L	See table "Time ranges"	DC 24 V	R2.054.0340.1	1
		AC 24 V 50 – 60 Hz	R2.054.0320.1	1
		AC 42 V 50 – 60 Hz	R2.054.0330.1	1
		AC 115 V 50 – 60 Hz	R2.054.0300.1	1
		AC 230 V 50 – 60 Hz	R2.054.0310.1	1