



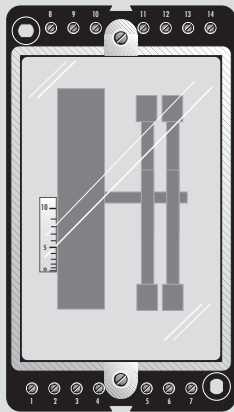
High Precision Clockwork Time Relays

MZU 131, MZU 231 for single voltage

Function: OFF-delay (RV) without auxiliary supply
1 time range

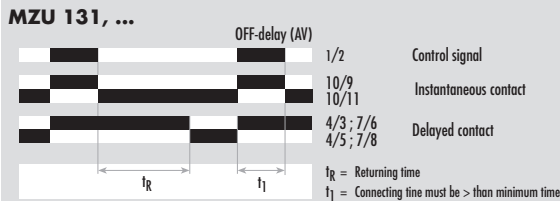
Contact equipment: MZU 131 = 2 timed and 1 instantaneous changeover
MZU 231 = 2 timed and 1 instantaneous changeover

MZU 131, ...



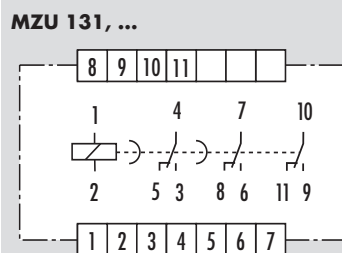
Function Diagram

FD 0021



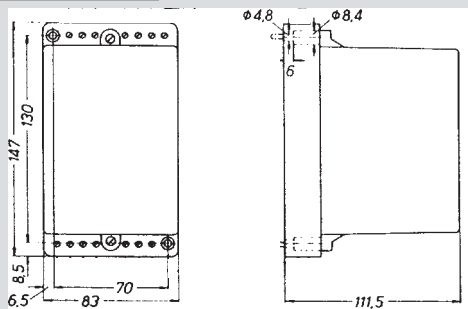
Connection Diagram

KS 5008/2



Dimensions

M 2-1



General

RV (see page M 5/3).

The time relays are equipped with high precision clockwork mechanism and reliable starting is ensured by the use of a patented special industrial design.

The timing error of the clockwork time relay of only $\pm 2\%$ related to the full scale value is not affected by voltage fluctuations.

Infinitely variable time setting within a range is carried out with the aid of a setting scale. It is necessary to remove the protection cover though.

Function

Upon energization, the solenoid actuates the instantaneous contact and the timed contacts and stresses the timing spring.

Upon de-energization, the solenoid and the instantaneous contact go into their off-position and the timing operation starts.

When the preset time has elapsed, a toothed segment in the clockwork is released to switch the timed contacts into their off-position.

If the solenoid is re-energized during the timing period, the relay goes back to its off-position. If de-energized, the preset delay period is repeated.

Note

- ▶ The clockwork mechanism may not be re-lubricated.
- ▶ In order to insure the functional reliability and the timing precision, the clockwork time relays should be overhauled after about 5 years, regardless of the switching frequency. They should also be regularly checked for good pickup action.

Product Description

The high precision clockwork time relays MZU 131 and MZU 231 are single range items and available in the following time ranges:

Time Range

1 to 10 s
6 to 60 s
18 to 180 s

Type	Standard voltage	Special voltage	Price Code
MZU 131 10 s	24 V AC	42 V AC	M 5/14.1
MZU 131 60 s	110 V AC	50 to 60 Hz	
	220 V AC		
	240 V AC	50 to 60 Hz	
MZU 131 180 s	24 V AC	42 V AC	M 5/14.2
	110 V AC	50 to 60 Hz	
	220 V AC		
	240 V AC	50 to 60 Hz	
MZU 231 10 s	24 V DC	48 V AC	M 5/14.3
MZU 231 60 s	110 V DC	60 V DC	
	220 V DC		
MZU 231 180 s	24 V DC	48 V AC	M 5/14.4
	110 V DC	60 V DC	
	220 V DC		



Electromechanical High Precision Time Relays

TECHNICAL DATA

FUNCTION according to DIN VDE 0435 Part 110:04.89

Point 3.15

Function display
Function diagram

POWER SUPPLY

Rated voltage U_N V AC
Rated voltage U_N V DC
Rated consumption: motor at 50 Hz and U_N (AC) VA
Rated consumption: motor at 50 Hz and U_N (AC) W
Rated consumption: coil at 50 Hz and U_N (AC) VA
Rated consumption: coil at 50 Hz and U_N (AC) W
Rated consumption DC W
Rated frequency Hz
Operating voltage range

TIME CIRCUIT

Time setting/Number of time ranges
Available time ranges s
Recovery time ms
Minimum switch-ON time ms
Release value % U_N
Permissible parallel load yes
Internal rectifier yes
Average of the error related to the full-scale value ± 2

OUTPUT CIRCUIT

Contact equipment
Contact material
Available modifications
Switching voltage U_n V AC/DC
Maximum continuous current I_n A
Application category according to EN 60947-5-1:1991
Permissible switching frequency switching cycles/h
Mechanical service life switching cycles
Response time ms
Release time ms

GENERAL DATA

Creepage and clearance distances between circuits according to DIN VDE 0110-1:04.97 rated surge voltage kV
Over voltage category III
Contamination level 3 outside, 2 inside
Design voltage V AC 400
Test voltage U_{eff} 50 Hz acc. to DIN VDE 0110-1, Table A.1 kV 2,68
Protection class housing/terminals acc. to DIN VDE 0470 Sec. 1:11.92 IP 30/IP 20
Radiated noise EN 50081-1:03.93, -2:03.94
Noise immunity EN 50082-2:1995

Ambient temperature, working range °C -10 to + 55
Dimensions M 2-1
Connection diagram KS 5008/2
Weight kg 1,0
Accessories -
Approvals page i.4

GENERAL TECHNICAL SPECIFICATIONS

MZU 131

High precision clockwork time relay for single voltage
OFF-delay time relay without auxiliary supply
-
FD 0021

24	42	110	220	240

analog/1
1 to 10
6 to 60
-
-
 ≥ 50
 ≥ 15
yes
yes
 ± 2

2 timed + 1 instantaneous changeover
Ag Cd O
Ag Pd 70/30*
400/400
5
AC-15 U_e 230 V AC, I_e 2 A
DC-13 U_e 24 V DC, I_e 2 A
500
 2×10^6
 ≤ 50
 ≤ 70

5
III
3 outside, 2 inside
400
2,68
IP 30/IP 20
EN 50081-1:03.93, -2:03.94
EN 50082-2:1995

-10 to + 55
M 2-1
KS 5008/2
1,0
-
page i.4

page i.5
*) Price: upon request

MZU 131

High precision clockwork time relay for single voltage
OFF-delay time relay without auxiliary supply
-
FD 0021

24	42	110	220	240

analog/1
-
-
18 to 180
-
 ≤ 50
 ≥ 15
yes
yes
 ± 2

2 timed + 1 instantaneous changeover
Ag Cd O
Ag Pd 70/30*
400/400
5
AC-15 U_e 230 V AC, I_e 2 A
DC-13 U_e 24 V DC, I_e 2 A
500
 2×10^6
 ≤ 50
 ≤ 70

5
III
3 outside, 2 inside
400
2,68
IP 30/IP 20
EN 50081-1:03.93, -2:03.94
EN 50082-2:1995

-10 to + 55
M 2-1
KS 5008/2
1,0
-
page i.4

page i.5
*) Price: upon request





Electromechanical High Precision Time Relays

TECHNICAL DATA

FUNCTION according to DIN VDE 0435 Part 110:04.89

Point 3.16

Function display
Function diagram

POWER SUPPLY

Rated voltage U_N V AC
Rated voltage U_N V DC
Rated consumption: motor at 50 Hz and U_N (AC) VA
Rated consumption: motor at 50 Hz and U_N (AC) W
Rated consumption: coil at 50 Hz and U_N (AC) VA
Rated consumption: coil at 50 Hz and U_N (AC) W
Rated consumption DC W
Rated frequency Hz
Operating voltage range

TIME CIRCUIT

Time setting/Number of time ranges
Available time ranges s
Recovery time s
Minimum switch-ON time ms
Release value % U_N
Permissible parallel load yes
Internal rectifier -
Average of the error related to the full-scale value ± 2

OUTPUT CIRCUIT

Contact equipment
Contact material
Available modifications
Switching voltage U_n V AC/DC
Maximum continuous current I_n A
Application category according to EN 60947-5-1:1991
Permissible switching frequency switching cycles/h
Mechanical service life switching cycles
Response time ms
Release time ms

GENERAL DATA

Creepage and clearance distances between circuits according to DIN VDE 0110-1:04.97: rated surge voltage kV
Over voltage category III
Contamination level 3 outside, 2 inside
Design voltage V AC 400
Test voltage U_{eff} 50 Hz acc. to DIN VDE 0110-1, Table A.1 kV 2,68
Protection class housing/terminals acc. to DIN VDE 0470 Sec. 1:11.92 IP 30/IP 20
Radiated noise EN 50081-1:03.93, -2:03.94
Noise immunity EN 50082-2:1995

Ambient temperature, working range °C -10 to + 55
Dimensions M 2-1
Connection diagram KS 5008/2
Weight kg 1,0
Accessories -
Approvals page i.4

GENERAL TECHNICAL SPECIFICATIONS

MZU 231

High precision clockwork time relay for single voltage
OFF-delay time relay without auxiliary supply
-
FD 0021

	24	48	60	110	220
Rated consumption: motor at 50 Hz and U_N (AC)	-	-	-	-	-
Rated consumption: motor at 50 Hz and U_N (AC)	-	-	-	-	-
Rated consumption: coil at 50 Hz and U_N (AC)	-	-	-	-	-
Rated consumption DC	-	-	-	-	-
Operating voltage range	ca. 15 pick-up/ca. 4 hold 0,8 to 1,1 x U_N				

analog/1
1 to 10
6 to 60
-
-
 ≥ 50
 ≥ 15
yes
-
 ± 2

2 timed + 1 instantaneous changeover
Ag Cd O
Ag Pd 70/30*
400/400
5
AC-15 U_e 230 V AC, I_e 2 A
DC-13 U_e 24 V DC, I_e 2 A
500
 2×10^6
 ≤ 50
 ≤ 25

5
III
3 outside, 2 inside
400
2,68
IP 30/IP 20
EN 50081-1:03.93, -2:03.94
EN 50082-2:1995

-10 to + 55
M 2-1
KS 5008/2
1,0
-
page i.4

page i.5

*) Price: upon request

MZU 231

High precision clockwork time relay for single voltage
OFF-delay time relay without auxiliary supply
-
FD 0021

	24	48	60	110	220
Rated consumption: motor at 50 Hz and U_N (AC)	-	-	-	-	-
Rated consumption: motor at 50 Hz and U_N (AC)	-	-	-	-	-
Rated consumption: coil at 50 Hz and U_N (AC)	-	-	-	-	-
Rated consumption DC	-	-	-	-	-
Operating voltage range	ca. 20 pick-up/ca. 2,5 hold 0,8 to 1,1 x U_N				

analog/1
-
-
18 to 180
-
 ≤ 50
 ≥ 15
yes
-
 ± 2

2 timed + 1 instantaneous changeover
Ag Cd O
Ag Pd 70/30*
400/400
5
AC-15 U_e 230 V AC, I_e 2 A
DC-13 U_e 24 V DC, I_e 2 A
500
 2×10^6
 ≤ 50
 ≤ 25

5
III
3 outside, 2 inside
400
2,68
IP 30/IP 20
EN 50081-1:03.93, -2:03.94
EN 50082-2:1995

-10 to + 55
M 2-1
KS 5008/2
1,0
-
page i.4

page i.5

*) Price: upon request

5