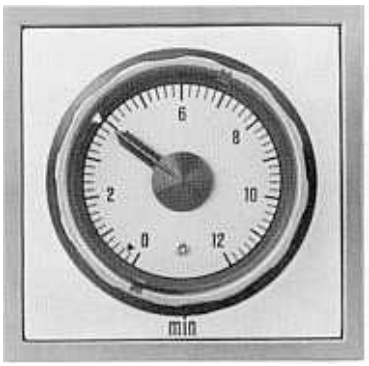
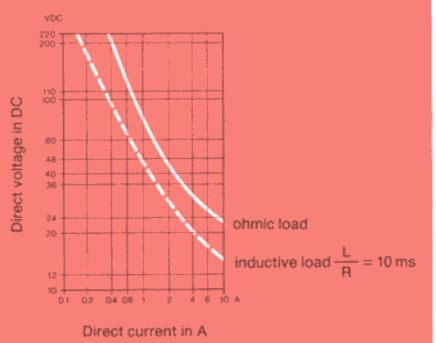
The well-proven electromechanical timers



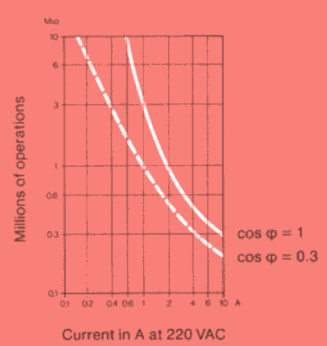
Characteristic features

- Multiple wiring combinations thanks to 2 timed and 2 instantaneous contacts
- Versions with 1 or 5 time ranges (with changeover facility)
- High electrical rating of output contacts up to 10 A/380 VAC
- Large setting knob for accurate time settings
- Timing run indication by rotating pointer
- High repetition accuracy of ± 0.5% of the full time range value
- High quality SAIA® industrial components: snap-action switches, synchronous motors, reduction gears

Breaking capacity direct current



Electrical life



Technical data

Timing characteristics

Time ranges	Versions with 1 time range and 5 time ranges (details see summary list, page 12)
Min. setting time	2.5% of the full time range value[1]
Setting accuracy	± 1% of the full time range value
Repetition accuracy	± 0.5% of the full time range value[2]
Reset time	⩽ 200 ms (KOD 611)
Running off indication	by turning time pointer

[1] On request: With zero setting facility. Permits the manual operation of the timed contacts, eg. when commissioning or testing a system
[2] The motor start delay of ± 0.1 s should be taken into account for the KOD 611 and delay times < 60 s

Control circuit

Supply voltage U_n	– Alternating current 50 Hz or 60 Hz – Direct current – Alternating current with direct current for control circuit (on request)
Voltage tolerance	–15%/+10%
Power consumption	3 W motor 7 W electromagnet
Duration of control pulse	min. 200 ms for KOD 612, min. 30 ms for KOD 611
Duty cycle	100%

Output

Contacts	2 timed and 2 instantaneous changeover contacts. Motor contact with additional delay 1% of the time range (t max.)
Type of contacts	SAIA® snap-action switch XFK3 with pure silver contacts
Delayed time	approx. 20 ms to operating or rest position
Breaking capacity Alternating current	10 A/380 VAC according to SEV, VDE 0660 (AC 1, ohmic load) 4(2) A/380 VAC according to SEMKO, DEMKO 10 A/380 VAC according to CSA
Direct current	see adjacent graph
Switching frequency	max. 3600 operations/h at 2 A/220 VAC AC 1, ohmic load max. 600 operations/h at 10 A/220 VAC AC 1, ohmic load
Life expectancy electrical	see adjacent graph
mechanical	10 million cycles or 30 000 motor running hours

General data

Insulation voltage	2.5 kV/50 Hz
Degree of protection Type of case A and B	Front: IP 50 (1 time range), IP 40 (5 time ranges) Terminals: IP 30 with standard terminal cover IP 20 with small terminal cover IP 10 without terminal cover
Type of case E and F	Front: IP 50, Terminals: IP 10
Ambient temperature	–5 °C to +40 °C
Resistance to vibration	Reliability of performance 2 g; mechanical resistance 2 g for type of case A/B, 5 g for type of case E/F; according to IEC 68-2-6, test FC in 3 planes at 10 ... 150 Hz during 6 hours
Resistance to shock	50 g; according to IEC 68-2-27, 3 shocks in each plane
Connections	Screw terminals for 2 × 2.5 mm² Push-on connectors 6.3 × 0.8 mm for type of case E/F on request

Dimensional drawings

KOD

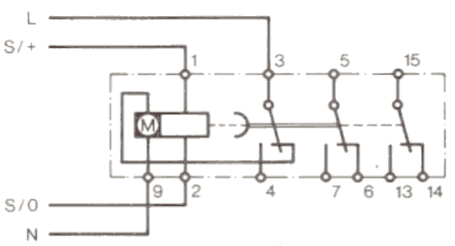
Function

The mains frequency serves as a time base which is converted to a rotary movement via a synchronous motor with reduction gear. The electromagnet (control circuit) actuates both the instantaneous contacts and the clutch of the timing element (motor). After running the set time the motor operates the time delayed contacts.

Direct current versions

Two direct current versions are supplied:
- Direct current for the electromagnet and motor (synchronous motor supplied from a DC converter).
- On request: Direct current for electromagnet only (control circuit). Alternating current for the motor (timing element).

Connection diagram



For DC version «positive pole» on terminal 9

Accessories

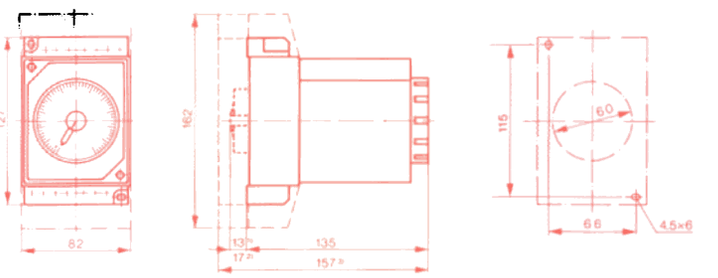
Protective transparent cover

For flush mounting versions as protection against unauthorized setting.
Order number: CJ 385

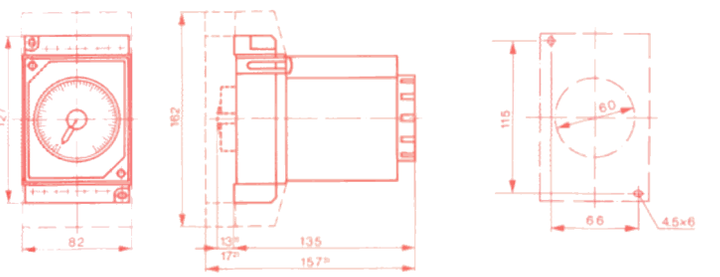
Mounting	Type of case A and B: Surface mounting, fixing with 2 screws M 4 (type of case B: via plug-in socket) Type of case E and F: Flush mounting, fixing with 2 screws M 4 × 15 mm (type of case F: via plug-in socket) Any mounting position
Weight	750 g (type of case E, 1 time range) to 1000 g (type of case B, 5 time ranges)
Approvals	SEV, VDE, SEMKO, DEMKO, CSA

Dimensional drawings

Type of case A, Surface mounting



Type of case B, Surface mounting plug-in

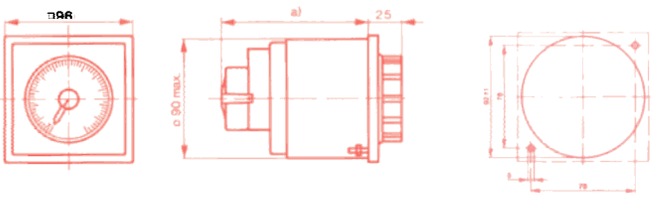


¹) Version with 5 time ranges

²) DC version with 1 time range

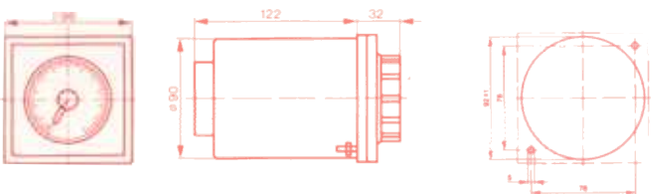
³) with additional base (accessories)

Type of case E, Flush mounting



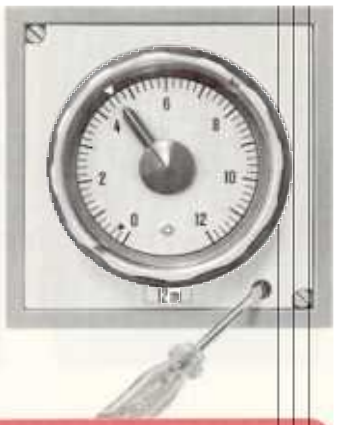
a) max. 110 mm for version with 1 time range
max. 125 mm for version with 5 time ranges
max. 129 mm for DC version

Type of case F, Flush mounting, plug-in



SAIA

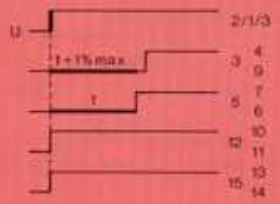
Summary list

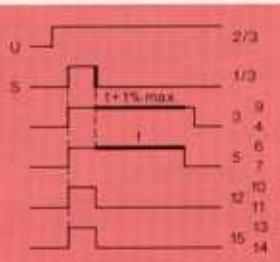


Time range selection on the versions with 5 time ranges is from the front by means of a screwdriver (also possible during a timing run). Time range selection by knob available on request. The full time range value is displayed in a window under the setting knob.

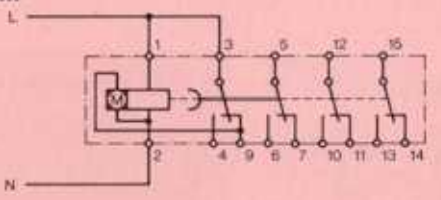
Delayed operation timer *2 timed and 2 instantaneous contacts resetting on supply failure*	**Delayed release timer** *2 timed and 2 instantaneous contacts standstill at zero voltage*
KOD 611	**KOD 612**

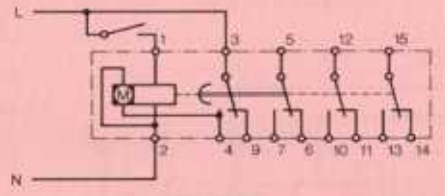
Function diagram





Connection diagram[1]





Function description

After application of the supply voltage, time delayed contact 5 operates with delay t and time delayed contact 3 (motor contact) with delay t +1% t max. Instantaneous contacts 12 and 15 are operated all the while the supply voltage is applied. On interruption of the supply the time delayed and instantaneous contacts are released and reset takes place to the set time t.

Note:
Reset time ≤ 200 ms (= min. voltage interruption for a reset).

Time delayed contacts 3 and 5 are operated on the closing of control circuit 1/2. When the control circuit opens, time delayed contact 3 operates with delay t and time delayed contact 3 (motor contact) with delay t + 1% t max. Instantaneous contacts 12 and 15 operate for the duration of the control pulse. On interruption of the supply, standstill takes place without reset, ie. the timing run continues when the supply is restored (permits time addition).

Note:
Control pulse duration min. 200 ms (reset to set time t).

Time ranges

1 time range

0.05 ... 2 s	**0.1 ... 6 min**	**0.1 ... 6 h**
0.1 ... 6 s	0.2 ... 12 min	0.2 ... 12 h
0.2 ... 12 s	0.5 ... 30 min	0.5 ... 30 h
0.5 ... 30 s	**1 ... 60 min**	
1 ... 60 s	2 ... 120 min	
2 ... 120 s		

5 time ranges (changeable)

Type MQ	Type MR	Type MS
0.1 ... 6 s	0.2 ... 12 s	0.5 ... 30 s
1 ... 60 s	2 ... 120 s	5 ... 300 s
0.1 ... 6 min	0.2 ... 12 min	0.5 ... 30 min
1 ... 60 min	2 ... 120 min	5 ... 300 min
0.1 ... 6 h	0.2 ... 12 h	0.5 ... 30 h

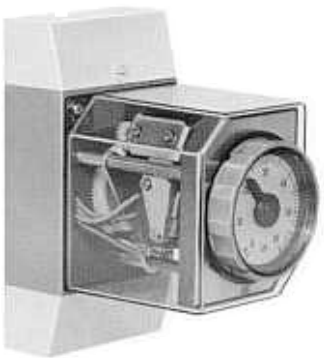
Supply voltage U_n

12 VAC, 24 VAC, 36 VAC, 42 VAC, 48 VAC, **110 VAC, 220 ... 240 VAC,** 380 VAC; **50 Hz** or 60 Hz
DC versions: 12 VDC, 24 VDC, 48 VDC, 110 VDC

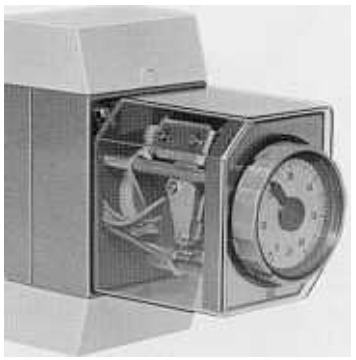
[1] The motor power consumption of 3 W should be taken into account if time delayed contact 3/9 is used, eg. for production of a pulse at the end of a run.

Ordering details

KOD



Accessories



Additional base with terminal cover

Permits surface-mounting on a flat base of the versions with 5 time ranges or the DC-version with 1 time range. Without additional base a space of min. 60 mm is required in the mounting plate.
Order numbers:
CJ 270 for additional base
CJ 272 for terminal cover (1 piece)

Small terminal cover

For surface-mounting case types A and B where there is insufficient space for the standard terminal cover.
Order number: CJ 271

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
K	O	D	6	1			0					N

Function

1 Delayed operation timer
resetting on supply failure

2 Delayed release timer
standstill at zero voltage

Type of case

A Surface mounting incl. standard terminal cover

B Surface mounting, plug-in incl. standard terminal cover

E Flush mounting

F Flush mounting, plug-in

Time range

CA	0.05 ... 2 s	**JA**	**0.1 ... 6 min**	**QA**	**0.1 ... 6 h**
DA	0.1 ... 6 s	KA	0.2 ... 12 min	RA	0.2 ... 12 h
EA	0.2 ... 12 s	LA	0.5 ... 30 min	SA	0.5 ... 30 h
FA	0.5 ... 30 s	**NA**	**1 ... 60 min**		
GA	**1 ... 60 s**	PA	2 ... 120 min		
HA	2 ... 120 s				

5 time ranges (full time range values)

MQ 6 s, 60 s, 6 min, 60 min, 6 h
MR 12 s, 120 s, 12 min, 120 min, 12 h
MS 30 s, 300 s, 30 min, 300 min, 30 h

Supply voltage

50 Hz		60 Hz		DC versions[1]	
B1	12 V	G1	12 V	M1	12 V
B4	24 V	G4	24 V	M4	24 V
B6	36 V	G6	36 V	N1	48 V
B8	42 V	G8	42 V	N8	110 V
C1	48 V	H1	48 V		
C8	**110 V**	H8	110 V		
E1	**220 – 240 V**	K1	220 – 240 V		
E4	380 V	K4	380 V		

[1] Versions with AC for the motor and DC for the control circuit on request

Accessories (to order separately)

CJ 385	Transparent cover	CJ 272	Terminal cover for additional base
CJ 270	Additional base	CJ 271	Small terminal cover

Note: The bold typeface denotes the standard versions.
Ordering can be by means of the above ASN-code or in plain language.

Example: Electromechanical timer KOD, 220 VAC/50 Hz, 2 to 120 s, surface mounting (with standard terminal cover), delayed operation
or
KOD 611 A0 HA E1 N