

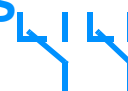


Bulletin 700-FS Timing Relays



- **Multi-Function**
 - 10 functions selectable
 - 10 time settings selectable
- **Single-Functions**
 - 11 single-functions selectable
 - 12 time settings available
- **Special Functions**
 - 3 single-functions selectable
 - 12 time settings available

Bulletin 700-FS Timing Relays



- **Multi-Function**
 - 10 functions selectable
 - 10 time settings available
- **Single-Functions**
 - 2 single-functions selectable
 - 10 time settings available

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Bulletin 700-FS
Electronic High Performance Timing Relays

Type Designation

Multi-Function

700-FS	M	3	U	U23
	Function M Multi-function timing relays 8 single-functions ON and OFF function additional (for commissioning and inspection)	Assem. of Contacts 3 1 Changeover contact 1 C/O 4 2 Changeover contacts 2 C/O (output 2 programmable as instantaneous contact)	Time Range U 0.05 s ... 60 h	Supply Voltage Z12 12 VDC U23 24 ... 48 VDC 24 ... 240 V 50/60 Hz U18 24 ... 240 VUC A40 400 V 50/60 Hz

Single-Functions

700-FS	A	3	U	U23
	Functions A On-delay B Off-delay	Assem. of Contacts 3 1 Changeover contact 1 C/O 4 2 Changeover contacts 2 C/O	Time Range U 0.05 s ... 60 h	Supply Voltage Z12 12 VDC U23 24 ... 48 VDC 24 ... 240 V 50/60 Hz A40 400 V 50/60 Hz

700-FS	A	3	A	U23
	Functions A On-delay B Reset delay C Pick-up and reset delay D One-shot E Fleeting off-delay F Flashing started by impulse G Flashing started by pause I Pulse generator J On-delay with impulse control K One-shot / Watch dog L Pulse converter	Assem. of Contacts 3 1 Changeover contact 1 C/O	Time Range A 0.05 ... 1 s B 0.15 ... 3 s C 0.5 ... 10 s D 1.5 ... 30 s E 0.05 ... 1 min F 0.15 ... 3 min G 0.5 ... 10 min H 1.5 ... 30 min I 0.05 ... 1 h J 0.15 ... 3 h K 0.5 ... 10 h L 3 ... 60 h	Supply Voltage Z12 12 VDC U23 24 ... 48 VDC 24 ... 240 V 50/60 Hz U18 24 ... 240 VUC A40 400 V 50/60 Hz

Special-Functions

700-FS	H	3	U	U23
	Functions H Unequal repeat cycle	Assem. of Contacts 3 1 Changeover contact 1 C/O	Time Range U 0.05 s ... 60 h V 2 x 0.05 s... 60 h	Supply Voltage Z12 12 VDC U23 24 ... 48 VDC 24 ... 240 V 50/60 Hz A40 400 V 50/60 Hz

700-FS	Q	3	Q	U18
	Functions Q Off-delay without Supply Voltages	Assem. of Contacts 3 1 Changeover contact 1 C/O 4 2 Changeover contacts 2 C/O	Time Range Q 0.15 s ... 10 min	Supply Voltage U18 24 ... 240 VUC

700-FS	Y	2	C	U23
	Functions Y Star-Delta Timing Relays	Assem. of Contacts 2 2 normally open contacts 2 N.O.	Time Ranges C 0.5 ... 10 s D 1.5 ... 30 s E 0.05 ... 1 min F 0.15 ... 3 min G 0.5 ... 10 min	Supply Voltages U23 24 ... 48 VDC 24 ... 240 V 50/60 Hz A40 400 V 50/60 Hz

Multi-Function

Overall-width 22.5 mm according to DIN 43880



Description	Multi-Time Setting Range 0.05 s...60 h
(A) - On-delay	(1s) 0.05...1 s
(B) - Off-delay	(3s) 0.15...3 s
(C) - On- and off-delay	(10s) 0.5...10 s
(D) - One-shot	(1mn) 0.05...1 min
(E) - Fleeting off-delay	(3mn) 0.15...3 min
(F) - Flashing started by impulse	(10mn) 0.5...10 min
(I) - Pulse generator	(1h) 0.05...1 h
(L) - Pulse converter	(3h) 0.15...3 h
(On) - ON-Function *	(10h) 0.5...10 h
(Off) - OFF-Function *	(60h) 3...60 h

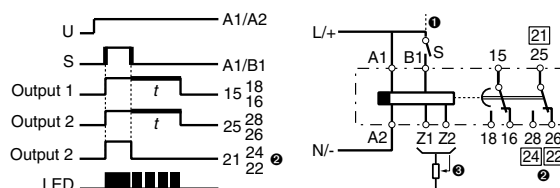
* (for commissioning and inspection)

Availability	Supply Voltages (A1/A2)	Cat. No.	PQ	Cat. No.	PQ
from stock	U23 24...48 VDC; 24...240 V, 50/60 Hz	700-FSM3UU23	1	700-FSM4UU23	1
on request	Z12 12 VDC	700-FSM3UZ12		700-FSM4UZ12	
on request	U18 24...240 VDC	700-FSM3UU18		700-FSM4UU18	
on request	A40 400 V, 50/60 Hz	700-FSM3UA40		700-FSM4UA40	

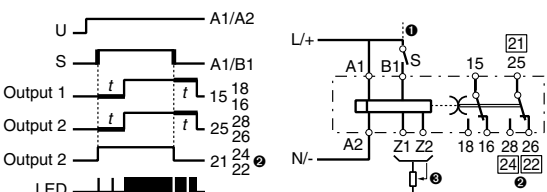
(A) On-delay



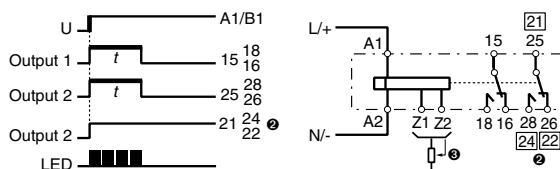
(B) Off-delay



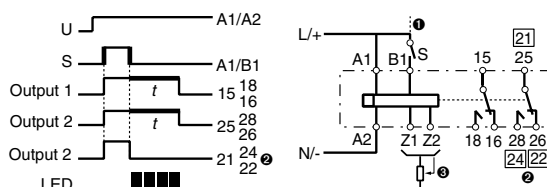
(C) On- and Off-delay



(D) One-shot



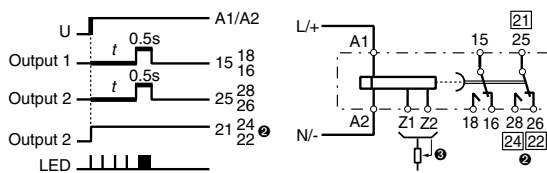
(E) Fleeting off-delay



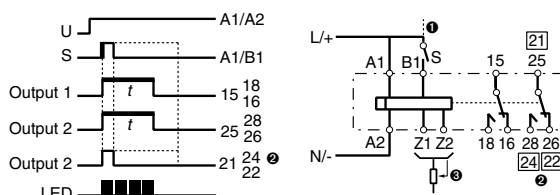
(F) Flashing started by impulse



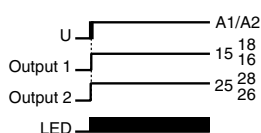
(I) Pulse generator



(L) Pulse converter



(On) ON-Function



(Off) OFF-Function



Unmistakably Function Display by LED

- Output in rest position, no timing
- Output in rest position, time running
- Output in operating position, no timing
- Output in operating position, time running

- ❶ A voltage other than the supply voltage can be used for the impulse control.
- ❷ Output 2, selectable as instantaneous contact with sliding switch on front panel
- ❸ Bridge or potentiometer 10 kΩ, min. 0.25 W (low voltage) for external setting.


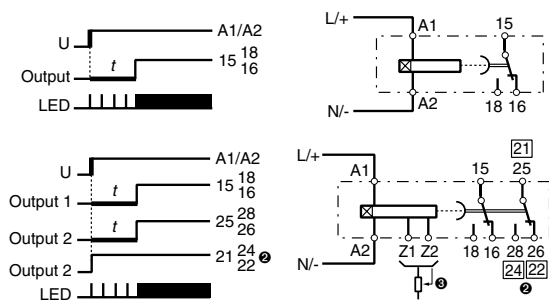
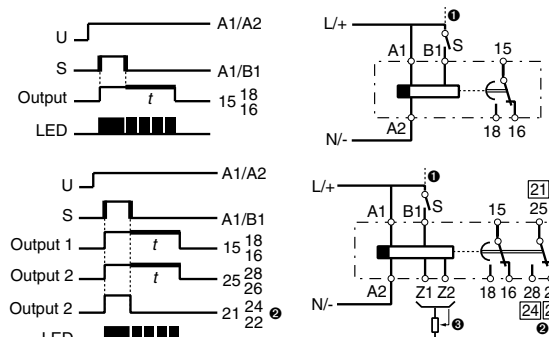
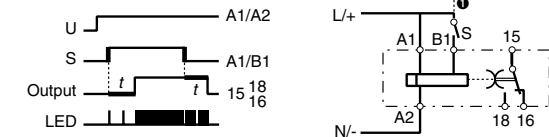
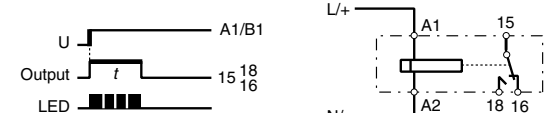
PQ = Package Quantity

Accessories - Page 8-11
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 Dimensions - Page 8-14

Bulletin 700-FS
Electronic High Performance Timing Relays
Product Selection

Single-Function

Overall-width 22.5 mm according to DIN 43880

Description																
 <p style="text-align: center;">Supply Voltages (A1/A2)</p> <p>Z12 12 VDC U23 24 ... 48 VDC 24 ... 240 V, 50/60 Hz U18 24 ... 240 VUC A40 400 V, 50/60 Hz</p>	<p>⚡ Available Mono-Time Ranges Complete the Cat. No. with the corresponding identification ⚡ from the table on the next page (bottom).</p> <p>Additionally for Functions A and B: U Available Mono-Time Ranges 0.05 s...60 h</p> <table border="0"> <tr> <td>(1s) 0.05...1 s</td> <td>(1mn) 0.05...1 min</td> <td>(1h) 0.05...1 h</td> </tr> <tr> <td>(3s) 0.15...3 s</td> <td>(3mn) 0.15...3 min</td> <td>(3h) 0.15...3 h</td> </tr> <tr> <td>(10s) 0.5...10 s</td> <td>(10mn) 0.5...10 min</td> <td>(10h) 0.5...10 h</td> </tr> <tr> <td></td> <td></td> <td>(60h) 3...60 h</td> </tr> </table>		(1s) 0.05...1 s	(1mn) 0.05...1 min	(1h) 0.05...1 h	(3s) 0.15...3 s	(3mn) 0.15...3 min	(3h) 0.15...3 h	(10s) 0.5...10 s	(10mn) 0.5...10 min	(10h) 0.5...10 h			(60h) 3...60 h		
(1s) 0.05...1 s	(1mn) 0.05...1 min	(1h) 0.05...1 h														
(3s) 0.15...3 s	(3mn) 0.15...3 min	(3h) 0.15...3 h														
(10s) 0.5...10 s	(10mn) 0.5...10 min	(10h) 0.5...10 h														
		(60h) 3...60 h														
Function Diagrams / Connection Diagrams	Cat. No.	PQ	Cat. No.	PQ												
<p>(A) On-delay The output contact changes state after the time delay is completed.</p> 	<p>from stock: 700-FSA3⚡U23 700-FSA3UU23 on request: 700-FSA3⚡Z12 700-FSA3UZ12 700-FSA3⚡U18 700-FSA3⚡A40 700-FSA3UA40</p>	1	<p>from stock: 700-FSA4UU23 on request: 700-FSA4UZ12 700-FSA4UA40</p>	1												
<p>(B) Off-delay The output contact changes state when switch „S“ is closed. When switch „S“ is opened, the time delay begins. After the time delay is completed, the contact returns to shelf state.</p> 	<p>from stock: 700-FSB3⚡U23 700-FSB3UU23 on request: 700-FSB3⚡Z12 700-FSB3UZ12 700-FSB3⚡U18 700-FSB3⚡A40 700-FSB3UA40</p>	1	<p>from stock: 700-FSB4UU23 on request: 700-FSB4UZ12 700-FSB4UA40</p>	1												
<p>(C) On- and Off-delay The output contact changes state after the time delay is completed. After the time delay is completed, the contact returns to shelf state.</p> 	<p>from stock: 700-FSC3⚡U23 on request: 700-FSC3⚡Z12 700-FSC3⚡U18 700-FSC3⚡A40</p>	1	—													
<p>(D) One-shot The output contact changes state when the relay is energised. The output contact returns to shelf state when the time delay is completed.</p> 	<p>from stock: 700-FSD3⚡U23 on request: 700-FSD3⚡Z12 700-FSD3⚡U18 700-FSD3⚡A40</p>	1	—													

- ⓘ A voltage other than the supply voltage can be used for the impulse control
- Ⓜ Output 2, selectable as instantaneous contact with sliding switch on front panel
- Ⓢ Bridge or potentiometer 10 kΩ, min. 0.25 W (low voltage) for external setting

PQ = Package Quantity

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Description		Cat. No.	PQ
Function Diagrams/ Connection Diagrams			
<p>(E) Fleeting off-delay The output contact changes state after closing and opening switch „S“. After the time delay is completed, the contact returns to shelf state.</p>		from stock: 700-FSE30U23 on request: 700-FSE30Z12 700-FSE30U18 700-FSE30A40	1
<p>(F) Flashing Started by Impulse The output contact changes state when power is applied. At the end of the time delay, the output contact returns to shelf state. This cycle continues until the power is removed.</p>		from stock: 700-FSF30U23 on request: 700-FSF30Z12 700-FSF30U18 700-FSF30A40	1
<p>(G) Flashing Started by Pause The output contact remains in the shelf state until the time delay is completed. When the time delay is completed, the contact changes state. This cycle continues until the power is removed.</p>		from stock: 700-FSG30U23 on request: 700-FSG30Z12 700-FSG30U18 700-FSG30A40	1
<p>(I) On-delay Pulse Generator The output contact changes state when the time delay is completed. After 0.5 s the contact opens.</p>		from stock: 700-FSI30U23 on request: 700-FSI30Z12 700-FSI30U18 700-FSI30A40	1
<p>(J) On-delay (Pulse Controlled) When switch „S“ is closed, the output contact changes state.</p>		from stock: 700-FSJ30U23 on request: 700-FSJ30Z12 700-FSJ30U18 700-FSJ30A40	1
<p>(K) One-Shot / Watch Dog When switch „S“ is closed, the output contact changes state.</p>		from stock: 700-FSK30U23 on request: 700-FSK30Z12 700-FSK30U18 700-FSK30A40	1
<p>(L) Pulse converter When switch „S“ is closed, the output contact changes state. The time „t“ is not influenced by the duration of the control pulse.</p>		from stock: 700-FSL30U23 on request: 700-FSL30Z12 700-FSL30U18 700-FSL30A40	1

ⓘ A voltage other than the supply voltage can be used for the impulse control

⚙ Mono-Time Ranges

Complete the Cat. No. with mono-time range identification



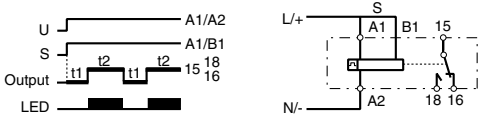
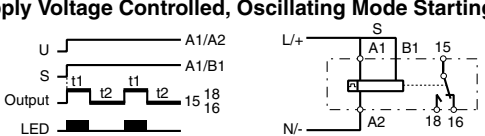
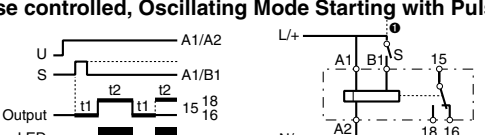
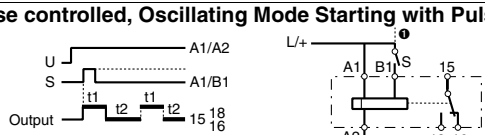
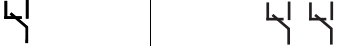
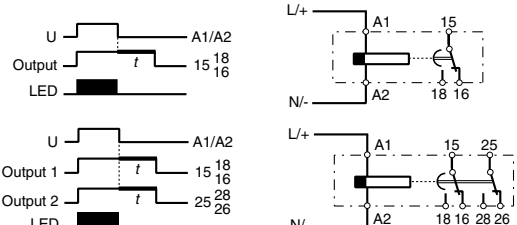
Time Ranges	0.05...1 s	0.15...3 s	0.5...10 s	1.5...30 s	0.05...1 min	0.15...3 min
⚙	A	B	C	D	E	F
Time Ranges	0.5...10 min	1.5...30 min	0.05...1 h	0.15...3 h	0.5...10 h	3.0...60 h
⚙	G	H	I	J	K	L

PQ = Package Quantity

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Special Functions

Overall-width 22.5 mm according to DIN 43880

Description																								
 <p style="text-align: center;">Supply Voltages (A1/A2)</p> <p>Z12 12 VDC U23 24 ... 48 VDC 24 ... 240 V, 50/60 Hz A40 400 V, 50/60 Hz</p>	Multi-Time Setting Ranges U 0.05 s...60 h V 2 x 0.05 s...60 h <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">(1s)</td> <td style="width: 25%;">0.05... 1 s</td> <td style="width: 25%;">(10mn)</td> <td style="width: 25%;">0.5...10 min</td> </tr> <tr> <td>(3s)</td> <td>0.15... 3 s</td> <td>(1h)</td> <td>0.05...1 h</td> </tr> <tr> <td>(10s)</td> <td>0.5... 10 s</td> <td>(3h)</td> <td>0.15...3 h</td> </tr> <tr> <td>(1mn)</td> <td>0.05...1 min</td> <td>(10h)</td> <td>0.5...10 h</td> </tr> <tr> <td>(3mn)</td> <td>0.15...3 min</td> <td>(60h)</td> <td>3... 60 h</td> </tr> </table>				(1s)	0.05... 1 s	(10mn)	0.5...10 min	(3s)	0.15... 3 s	(1h)	0.05...1 h	(10s)	0.5... 10 s	(3h)	0.15...3 h	(1mn)	0.05...1 min	(10h)	0.5...10 h	(3mn)	0.15...3 min	(60h)	3... 60 h
(1s)	0.05... 1 s	(10mn)	0.5...10 min																					
(3s)	0.15... 3 s	(1h)	0.05...1 h																					
(10s)	0.5... 10 s	(3h)	0.15...3 h																					
(1mn)	0.05...1 min	(10h)	0.5...10 h																					
(3mn)	0.15...3 min	(60h)	3... 60 h																					
<p style="text-align: center;">Function Diagrams/ Connection Diagrams</p> <p>(H) Flasher (Repeat Cycle Starting with Pulse or Pause) The repeat cycle timer permits different setting for on and off times. The following operating modes are possible depending on device and drive:</p> <ul style="list-style-type: none"> - Output starts with pulse or pause - Controlled by supply voltages or additional control contact. - Period runoff or continuous cycles (when operated with control contact). - Joint selection of time ranges with 700-FSH3U or individual selection of time range with 700-FSH3V for pulse and pause time. <p>Supply Voltage Controlled, Oscillating Mode Starting with Pause</p>  <p>Supply Voltage Controlled, Oscillating Mode Starting with Pulse</p>  <p>Pulse controlled, Oscillating Mode Starting with Pulse and Pause</p>  <p>Pulse controlled, Oscillating Mode Starting with Pulse</p> 	Cat. No. from stock: 700-FSH3UU23 700-FSH3VU23 on request: 700-FSH3UZ12 700-FSH3VZ12 700-FSH3UA40 700-FSH3VA40	PQ 1																						
<p>❶ A voltage other than the supply voltage can be used for the impulse control</p>																								
<p style="text-align: center;">Supply Voltages (A1/A2)</p> <p>U18 24 ... 240 VUC</p>	Multi-Time Setting Ranges Q 0.15 s...10 min <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">(2.5s)</td> <td style="width: 25%;">0.15 ... 2.5 s</td> <td style="width: 25%;">(80s)</td> <td style="width: 25%;">4 ... 80s</td> </tr> <tr> <td>(10s)</td> <td>0.5 ... 10 s</td> <td>(10mn)</td> <td>0.5 ... 10min</td> </tr> </table>				(2.5s)	0.15 ... 2.5 s	(80s)	4 ... 80s	(10s)	0.5 ... 10 s	(10mn)	0.5 ... 10min												
(2.5s)	0.15 ... 2.5 s	(80s)	4 ... 80s																					
(10s)	0.5 ... 10 s	(10mn)	0.5 ... 10min																					
<p style="text-align: center;">Function Diagrams/ Connection Diagrams</p> <p>(Q) Off-delay without Supply Voltages When input power is turned on, the output contact changes state. When the power is removed, the time delay begins. The output contact returns to shelf state at the end of the time delay.</p> 	Cat. No. from stock: 700-FSQ3QU18	PQ 1	Cat. No. from stock: 700-FSQ4QU18	PQ 1																				

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Specifications - Page 8-12
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Special Functions

Overall-width 22.5 mm according to DIN 43880

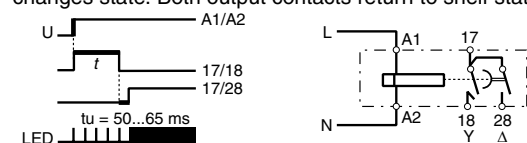
Description	
	<p>Supply Voltages (A1/A2) U23 24 ... 48 VDC 24 ...240 V, 50/60 Hz A40 400 V, 50/60 Hz</p>

⊕ **Available Mono-Time Ranges**
Complete the Cat. No. with the corresponding identification ⊕ from the table below.

Function Diagrams / Connection Diagrams

(Y) Star-Delta Timing Relay

When power is applied, the output contact (Y) changes state. After the fixed time t_u , the output contact Δ changes state. Both output contacts return to shelf state whenever the power is removed.



Cat. No.

PQ

from stock:
700-FSY2⊕U23
on request:
700-FSY2⊕A40

1

⊕ Mono-Time Ranges

Complete the Cat. No. with mono-time identification.

Time Ranges	0.5...10 s	1.5...30 s	0.05...1 min	0.15...3 min	0.5...10 min
⊕	C	D	E	F	G

8

Accessories

Description	Cat. No.	PQ
<p>Setting Knob with Scale Raised setting knob for time setting without tools</p>	700-FSK	10
<p>Screw Adapter For surface mounting according to drilling plan EN 50 002</p>	199-FSA	5

Labelling Material

	<ul style="list-style-type: none"> Uniform labelling material for contactors, motor protection devices, timing relays and circuit breakers. For product information and ordering informations see chapter 3.
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PQ = Package Quantity

Bulletin 700-FS
Electronic High Performance Timing Relays
Specifications

Specifications

Time characteristics (according to VDE 0435, Part 2021)

Setting accuracy	± 5% of the rime range end value ($t_{max.}$)
Repeatability	± 0.2% of the setting value
Tolerances	voltage: ± 0.001%/°ΔU temperature: ± 0.025%/°C

Supply

Supply Voltages	24...48 VDC and 24...240 VAC, 50/60 Hz (dual voltage)	
Voltage Tolerance		
AC		-15%/+10%
DC		-20%/+20%
Power Consumption		
at 240 VAC	[VA]	5
at 24 VDC	[W]	0.5
Time Energised		100%
Reset Value	[ms]	50
Voltage Isolation	≤20 ms without reset (supply voltage)	
Cable Length of Supply Voltage Control	[m]	max. 250

Pulse Control (B1)

Pulse Duration		
AC	[ms]	≥50
DC	[ms]	≥30
Input Voltage	same as supply voltage range	
Input Current	[mA]	1
Cable Length		
without parallel load between B1 and A2	[m]	max. 250
with load (<3 kΩ) between B1 and A2	[m]	max. 50

Outputs

Contact Type	Relays as changeover switch	
Switching Capacity	Voltage: 440 VAC Current I_{th} : 8 A Power: 2000 VA according to IEC 947-5-1: 3 A/440 VAC (inductive load, AC 14) 3 A/250 VAC (inductive load, AC 15) 1 A/24 VDC (inductive load, DC 13) according to UL 508: 1.5 A/250 VAC (B300) 3 A/120 VAC (B300)	
Short-circuit Resistance	10 A gL	
Lifespan		
mechanical	[operations]	30 Mio.
electrical	[operations]	4 Mio. at 1 A/250 VAC, $\cos \varphi = 1$ 0.2 Mio. at 6 A/250 VAC, $\cos \varphi = 1$ 1.5 Mio. at 1 A/250 VAC, $\cos \varphi = 0.3$ 0.3 Mio. at 3 A/250 VAC, $\cos \varphi = 0.3$ 0.5 Mio. at 6 A/24 VDC, resistive 2 Mio. at 4 A/24 VDC, resistive 2 Mio. at 0.2 A/230 VDC, resistive 1 Mio. at 0.4 A/24 VDC, L/R = 20 ms 1 Mio. at 0.2 A/110 VDC, L/R = 20 ms 1 Mio. at 0.1 A/230 VDC, L/R = 20 ms
State Indication	1 LED, combination signal	

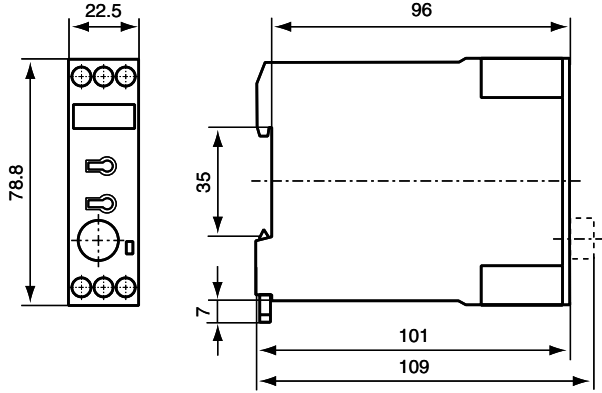
8

General Data

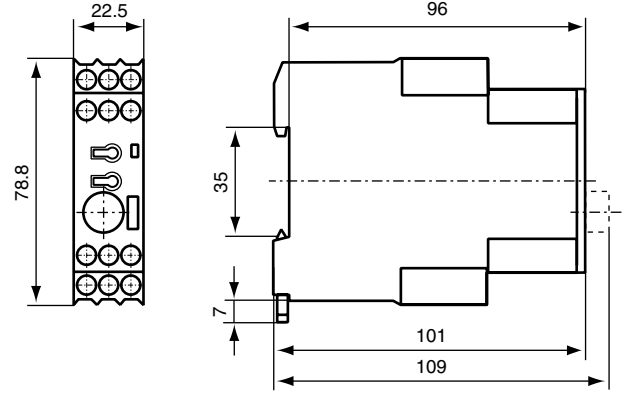
Insulation Characteristics	2 kVAC/50 Hz test voltage according to VDE 0435 and 6 kV 1.2/50 μ s surge voltage according to IEC 947-1 between all inputs and outputs
EMC Interference Immunity Surge Capacity of Supply Voltage Burst ESD Discharge Electromagnetic HF field Conducted electromagnetic HF field signal	Performance of following requirements: according to IEC 1000-4-5: 4 kV 1.2/50 μ s according to IEC 1000-4-4: 6 kV 6/50 ns according to IEC 1000-4-2: contact 8 kV, air 8 kV according to IEC 801-3: level 3 according to IEC 801-6: level 3
EMC Emission	electromagnetical field according to EN 55 022: class B
Safe Isolation	according to VDE 106, part 101
Climatic Withstand	56 cycles (24 h) at 25...40°C and 95% rel. humidity according to IEC 68-2-30 and IEC 68-2-3
Vibration Resistance	4 G in 3 axis at 10...500 Hz, test FC according to IEC 68-2-6
Shock Resistance	50 G according to IEC 68-2-27
Protection Class Enclosure Terminals	IP 40, IP 30 (single-function) IP 20 according to IEC 947-1
Weight [g]	100
Approvals	CE, UL Listed, C-UL Listed, Germanischer Lloyd
Ambient Temperature Open [°C] Enclosed [°C] Storage [°C]	-25 ... +60 -25 ... +45 -40 ... +85
Terminals	Screw terminal M3.5 for pozidrive No.2, Philips and slotted screws No. 2. Suitable for power screw driver. Rated tightening torque 0.8 Nm (max. 1.2 Nm) Dual-chamber system for terminal cross-sections of 1 x 0.5 mm ² ... 2 x 2.5 mm ² (solid) or 2 x 2.5 mm ² (stranded, flexible with sleeve), AWG 20...14. Finger protection according to VDE 0106
Mounting	Front mounting; For snap-on mounting on DIN rail 35 mm or screw fixing by adapter and 2 screws M4

Bulletin 700-FS
Electronic High Performance Timing Relays
Dimensions

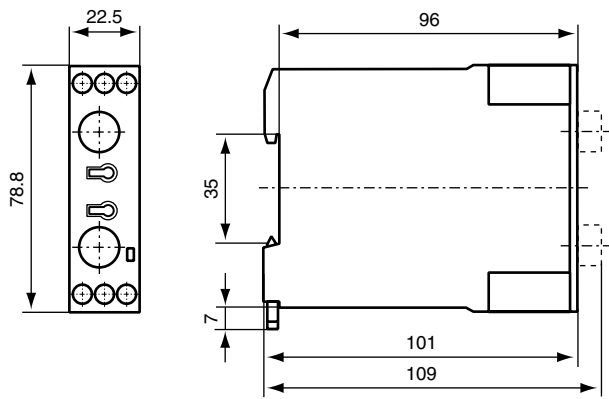
Dimensions are shown in millimeters



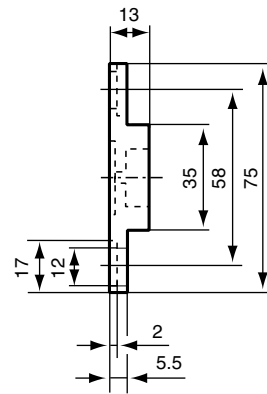
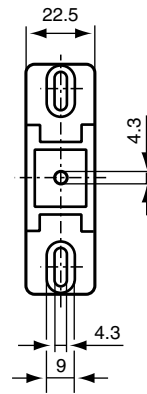
700-FS (1 C/O)



700-FS (2 C/O)



700-FSH3V...



199-FSA



Bulletin 700-FE Timing Relay

- **Multi-Function**
4 functions selectable
4 time settings selectable
- **Single-Functions**
4 single-functions selectable
4 time settings selectable

Bulletin 700-FE Timing Relay

- **Multi-Function**
4 functions selectable
6 time settings selectable
- **Single-Functions**
6 single-functions selectable
6 time settings selectable
- **Special Function**
1 single-function
4 time settings selectable

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