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Bulletin 700-FS — High Performance Timing Relay

- Adjustable function and timing range timing relays
- DIN Rail mounted without cost of socket
- 22.5 mm wide multi-function or single functions
- Available as SPDT or DPDT contact output, 8 A
- Timing Ranges From 0.05 s…60 hr
- Coil surge protection
- Hazardeous location version available

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Standards Compliance and Certifications

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Catalog Number Explanation

700	–	FS	H	3	U	U23
Bulletin Number		Type of Relay	Operating Mode	Contact Output	Timing Range	Input Voltage

Single-Function (With SPDT 1 C/O contacts)

700–FS	A	3	A	U23
	a	*b*	*c*	*d*

a

Operating Mode	
Code	Description
A	On-delay∗
B	Off-delay∗
C	On- and off-delay∗
D	One shot∗
E	Fleeting off-delay∗
F	Flasher (repeat cycle starts with pulse)∗
G	Flasher (repeat cycle starts with pause)∗
I	On-delay pulse generator∗
J	On-delay (pulse controlled)∗
K	One shot/watch dog (pulse controlled)∗
L	Pulse converter∗

b

Contact Output	
All functions:	
3 One changeover contact (SPDT)	1 C/O

c

Timing Range	
Code	Description
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 hr
J	0.15…3 hr
K	0.5…10 hr
L	3.0…60 hr
U	0.05 s…60 hr❄

d

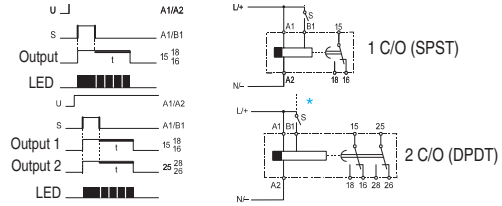
Input Voltage	
Code	Description
Z12	12V DC
U23	24…48V DC 24…240V AC 50/60 Hz

∗ Preferred availability item.
❄ Valid for functions "A" and "B" only.

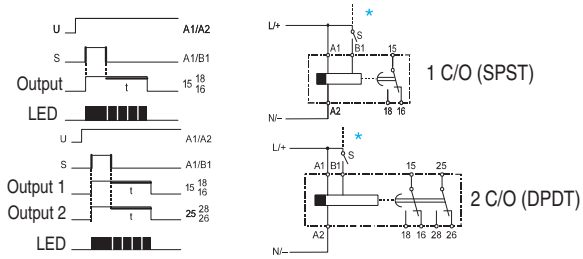
9

Connection Diagrams

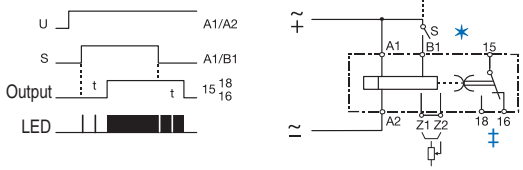
(A) On-Delay



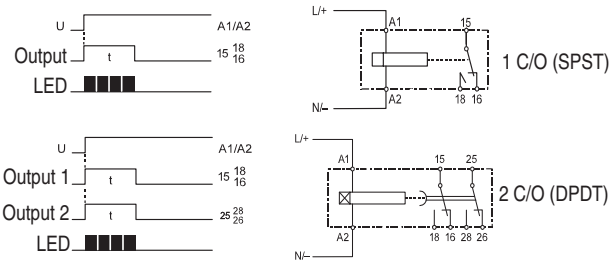
(B) Off-Delay (Min. Pulse AC 50 ms…DC 30 ms)



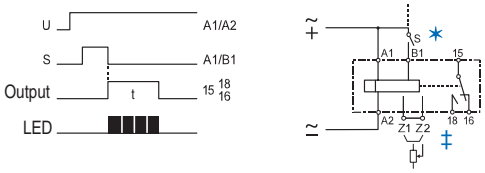
(C) On- and Off-Delay



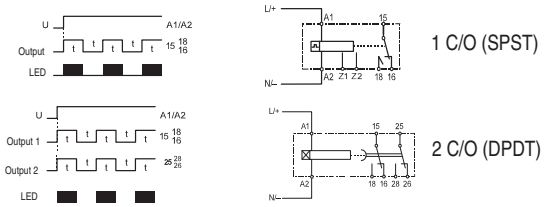
(D) One Shot



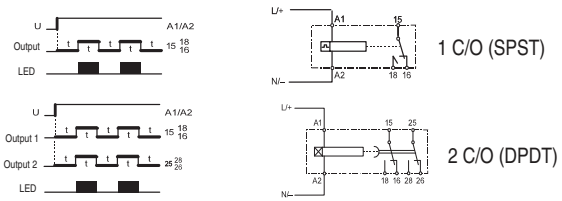
(E) Fleeting Off-Delay (Min. Pulse AC 50 ms…DC 30 ms)



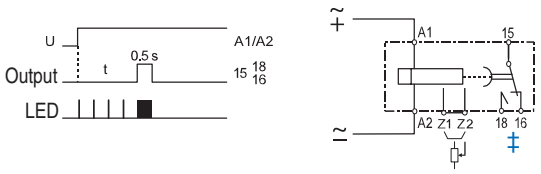
(F) Flasher (Repeat Cycle Starts with Pulse)



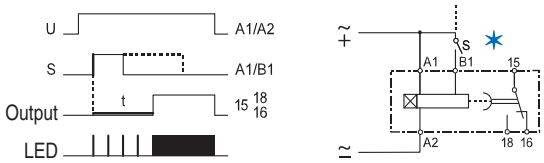
(G) Flasher (Repeat Cycle Starts with Pause)



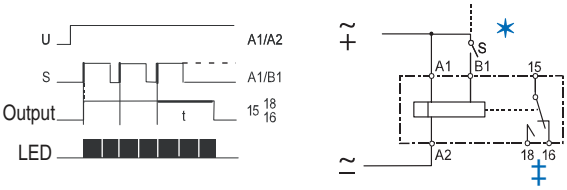
(I) On-Delay Pulse Generator



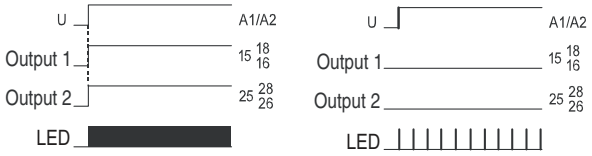
(J) On-Delay (Pulse Controlled)



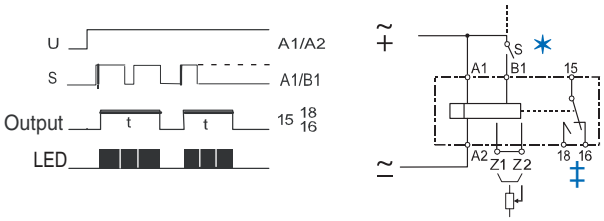
(K) One Shot/Watch Dog (Pulse Controlled)



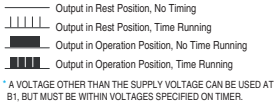
(On) ON-Function (Off) OFF-Function



(L) Pulse Converter (Min. Pulse AC 50 ms…DC 30 ms)



Cleverly Designed Function Display LED (Green)



* A VOLTAGE OTHER THAN THE SUPPLY VOLTAGE CAN BE USED AT B1, BUT MUST BE WITHIN VOLTAGES SPECIFIED ON TIMER.

∗ A voltage other than the supply voltage can be used at B1, but must be within voltages specified on timer.
❄ Output 2 is selectable as instantaneous contact with sliding switch (⊗) on front panel (instantaneous when switch is down, timed when switch is up).
‡ Available on multifunction "M," and single function "A" or "B" option timing relays along with code "4" (2PDT contacts). Bridge or potentiometer 10 kΩ, 0.25 W min. (low voltage) for external time setting. Set timer dial to 0.0.

Specifications

Time Characteristics (according to VDE 0435, Part 2021)

Setting Accuracy	±5% of full scale
Repeatability	±0.2% of the setting values
Tolerance	Voltage: ±0.001%/%ΔU Temperature: ±0.025%/°C

Supply

Supply Voltages	24…48V DC and 24…240V AC, 50/60 Hz (multi voltage)
Voltage Tolerance	–20…+20% (DC), –15…+10% (AC)
Power Consumption	0.5 W at 24V DC, 5 VA at 240V AC
Time Energized	100%
Reset Time	50 ms
Voltage Interruption	≤20 ms without reset (supply voltage)
Input Impedance	Relay ON: 3K-13K ohms Relay OFF: 0.7K-4K ohms
Cable Length (Supply Voltage Control)	Max. 250 m (800 ft)

Pulse Control (B1)

Pulse Duration	≥50 ms (AC), ≥30 ms (DC)
Input Voltage	Supply voltage range
Input Current	1 mA
Max. Leakage Current	400 micro Amps
Cable Length	Max. 250 m (800 ft) without parallel load between B1 and A2 Max. 50 m (160 ft) with load (<3 kΩ) between B1 and A2

Outputs

Contact Type	Relay as changeover switch
Dielectric Coil to Contact Withstand Voltage	5000 V
Switching Capacity	Voltage: 440V AC
	Current Ith (AC-1): 8 A (5 A for 700-FSQ)
	Power: 2000 VA
	According to IEC 947-5-1:
	3 A/440V AC (inductive load, AC 14)
	3 A/250V AC (inductive load, AC 15)
	1 A/24V DC (inductive load, DC 13)
	According to UL 508:
	1.5 A/250V AC (B300)
	3 A/120V AC (B300)
Short-Circuit Resistance	10 A gL
Life	Mechanical: 30 million operations
	Electrical operations:
	4 Mil. at 1 A/250V AC, cos ϕ = 1
	0.2 Mil. at 6 A/250V AC, cos ϕ = 1
	1.5 Mil. at 1 A/250V AC, cos ϕ = 0.3
	0.3 Mil. at 3 A/250V AC, cos ϕ = 0.3
	0.5 Mil. at 6 A/24V DC, resistive
	2 Mil. at 4 A/24V DC, resistive
	2 Mil. at 0.2 A/230V DC, resistive
	1 Mil. at 0.4 A/24V DC, L/R = 20 ms
	1 Mil. at 0.2 A/110V DC, L/R = 20 ms
	1 Mil. at 0.1 A/230V DC, L/R = 20 ms
State Indicator	1 LED, combination signal

General Data

Insulation Characteristics	2 kVAC/50 Hz test voltage according to VDE 0435 and 6 kV 1.2/50 µs surge voltage according to IEC 947-1 between all inputs and outputs
EMC/Interference Immunity	Performance of following requirements: Surge capacity of the supply voltage according to IEC 1000-4-5: 4 kV 1.2/50 µs Burst according to IEC 1000-4-4: 6 kV 6/50 ns ESD discharge according to IEC 1000-4-2: Contact 8 kV, air 8 kV Electromagnetic HF field according to IEC 801-3 and conducted electromagnetic HF signal according to IEC 801-6: Level 3
EMC/Emission	Electromagnetic fields according to EN 55 022: class B
Safe Isolation	According to VDE 106, part 101
Climatic Withstand	56 Cycles (24 hr) at 25…40 °C and 95% relative humidity according to IEC 68-2-30 and IEC 68-2-3
Vibration Resistance	4 g in three axes 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:IP 40 IP 30 (Single-function) Terminal:IP 20 according to IEC 947-1
Weight	100 g
Approval	UL, C-UL
Ambient Temperature	Open: –25…+60 °C Enclosed: –25…+45 °C Storage: –40…+85 °C
Terminals	Screw terminal M3.5 for Number 2 Posidrive, Philips, and slotted screws. Suitable for power screwdriver. Rated tightening torque 8.8 lb.-in. (0.8 N•m, max. 1.2 N•m). Dual-chamber system for terminal cross-sections of 1 x 0.5 mm²…2 x 2.5 mm² (solid) or stranded 2 x 2.5 mm² (flexible with sleeve), #20…14 AWG. Finger protection according to VDE 0106.
Mounting	Front mounting; For snap-on mounting on 35 mm DIN Rail or screw fixing by adapter and 2 screws (M4 type)
Disposal	Synthetic material without dioxin according to EC/EFTA notification Number 93/0141/D electrical contacts with cadmium
Certifications	cULus Listed (File No. E14840, Guide NKCR/NKCR7), CE Marked
Standards	EN/IEC 60947-1, EN/IEC 60947-5-1, UL 508, CSA 22.2 No. 14

∗ Performance Data — See this catalog, Important- 3.

Ex	c UL us	Temp. Code T4A 2A 32VDC MAX.

Mounting: Product shall be installed in an enclosure constructed in accordance with the requirements of EN50021.

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