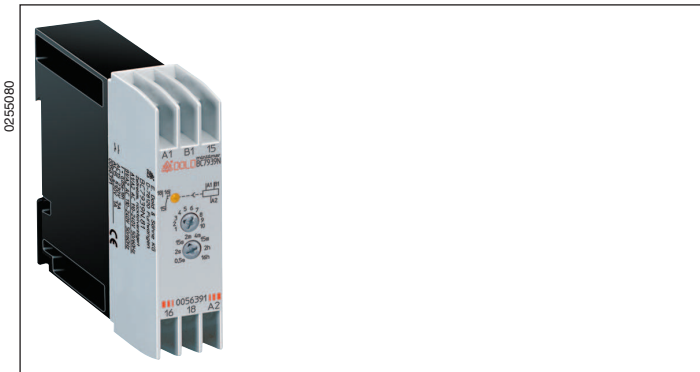


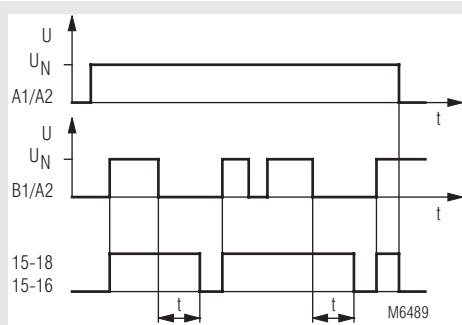
# Time Control Technique

## MINITIMER Timer, Release Delay BC 7939N



- According to IEC/EN 61 812-1
- Release delay with control signal
- 8 settable time ranges between 0.05 s and 10 h
- Settable release delay
- With auxiliary voltage
- Wide voltage range AC 110 ... 240 V
- Control input operated with nominal voltage, No voltage free contact necessary
- LED indicator for status of contact
- 1 changeover contact
- Wire connection: also 2 x 1.5 mm<sup>2</sup> stranded ferruled (isolated), DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm<sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3
- Width 22.5 mm

### Function Diagram



### Approvals and Markings



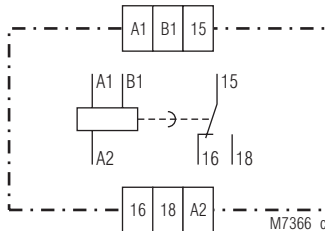
### Applications

Time-dependent control circuits

### Indicators

yellow LED: on, when output relay activated (contact 15 - 18 closed)

### Circuit Diagram



### Notes

The relay needs a supply voltage continuously connected to A1-A2. At relays with auxiliary supply < AC 180 V the control input must not be operated before the auxiliary supply is present for at least 150 ms. In this case also the recovery time after time delay is 150 ms.

### Connection Terminals

Terminal designation	Signal designation
A1, A2	Operating voltage
B1	Control input
15, 16, 18	Changeover contact

## Technical Data

### Time Circuit

<b>Time ranges:</b>	8 settable time ranges:
	0.05 ... 1 s    0.5 ... 10 m
	0.15 ... 3 s    1.5 ... 30 m
	0.5 ... 10 s    0.15 ... 3 h
	1.5 ... 30 s    0.5 ... 10 h
	5 ... 100 s
	15 ... 300 s
<b>Time setting:</b>	infinitely variable 1:10
<b>Min. closing time:</b>	(Control input B1) AC: 15 ms DC: 5 ms
<b>Recovery time:</b>	< 50 ms
<b>Repeat accuracy:</b>	≤ 0.5 % + 10 ms
<b>Voltage influence:</b>	≤ 1 %
<b>Temperature influence:</b>	≤ 0.25 % / K

### Input

<b>Nominal voltage <math>U_N</math></b> (Operating voltage):	(A1/A2 and B1/A2) AC 110 ... 240 V AC 42 ... 48 V / DC 48 V AC/DC 24 V
<b>Voltage range:</b>	AC: 0.8 ... 1.1 $U_N$ DC: 0.9 ... 1.25 $U_N$
<b>Nominal consumption:</b>	AC: 4 VA DC: 0.4 W
<b>Nominal frequency:</b>	AC: 50 / 60 Hz
<b>Frequency range:</b>	AC: 45 ... 65 Hz
<b>Reset voltage:</b>	(Control input B1) ≥ 15 % $U_N$

### Output

<b>Contacts:</b>	BC 7939N.81: 1 changeover contact
<b>Contact material:</b>	AgNi
<b>Measured nominal voltage:</b>	AC 250 V
<b>Thermal current <math>I_{th}</math>:</b>	4 A
<b>Switching capacity</b> to AC 15	
NO contact:	3 A / AC 230 V    IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V    IEC/EN 60 947-5-1
<b>Electrical contact life</b> to AC 15 at 1 A, AC 230 V:	1.5 x 10 <sup>5</sup> switching cycles    IEC/EN 60 947-5-1
<b>Permissible switching frequency:</b>	36 000 switching cycles / h
<b>Short circuit strength</b> <b>max. fuse rating:</b>	4 A gG / gL    IEC/EN 60 947-5-1
<b>Mechanical life:</b>	10 <sup>8</sup> switching cycles

### General Data

<b>Operating mode:</b>	Continuous operation	
<b>Temperature range</b>		
Operation:	- 20 ... + 60 °C	
Storage:	- 25 ... + 70 °C	
<b>Relative air humidity:</b>	95 % at 40 °C	
<b>Altitude:</b>	< 2.000 m	
<b>Clearance and creepage distances</b>		
overvoltage category / pollution degree:	4 kV / 2 (basis insulation)    IEC 60 664-1	
Overvoltage category:	III	
Insulation test voltage, type test:	2.5 kV; 1 min	
<b>EMC</b>		
Electrostatic discharge:	6 kV (contact)    IEC/EN 61 000-4-2	8 kV (air)    IEC/EN 61 000-4-2
HF irradiation		
80 MHz ... 1 GHz:	10 V / m	IEC/EN 61 000-4-3
1 GHz ... 2.5 GHz:	3 V / m	IEC/EN 61 000-4-3
2.5 GHz ... 2.7 GHz	1 V / m	IEC/EN 61 000-4-3
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge voltages		
between A1/A2:	1 kV	IEC/EN 61 000-4-5
between B1/A2:	1 kV	IEC/EN 61 000-4-5
between A1, A2/PE:	2 kV	IEC/EN 61 000-4-5
HF-wire guided:	10 V	IEC/EN 61 000-4-6
Interference suppression:	Limit value class B	EN 55 011

## Technical Data

### Degree of protection

Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
<b>Housing:</b>	Thermoplastic with V0 behaviour according to UL subject 94	
<b>Vibration resistance:</b>	Amplitude 0.35 mm IEC/EN 60 068-2-6 frequency 10 ... 55 Hz	
<b>Climate resistance:</b>	20 / 060 / 04 IEC/EN 60 068-1	
<b>Terminal designation:</b>	EN 50 005	
<b>Wire connection:</b>		
Cross section:	1 x 4 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled (isolated) or 2 x 1.5 mm <sup>2</sup> stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm <sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3	
Insulation of wires or sleeve length:	10 mm	
<b>Wire fixing:</b>	Terminal screws M 3.5 Box terminal with wire protection	
<b>Fixing torque:</b>	0.8 Nm	
<b>Mounting:</b>	DIN rail	IEC/EN 60 715
<b>Weight:</b>	80 g	

### Dimensions

<b>Width x height x depth:</b>	22.5 x 84 x 97 mm
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### Standard Type

BC 7939N.81	AC 110 ... 240 V	50/60 Hz	16 h
Article number:	0056391		
• Front colour grey, with box terminals			
• Output:	1 changeover contact		
• Nominal voltage $U_N$ :	AC 110 ... 240 V		
• Time range:	0.05 ... 16 h		
• Width:	22.5 mm		

### Ordering Example

BC 7939N	.81	AC 110 ... 240 V	50 / 60 Hz	0.05 ... 16 h
			Time delay	
			Nominal frequency	
			Nominal voltage	
			Contact	
			Type	

### Connection Examples

