

## OptiRel D TMR Time relays



The OptiRel D TMR series time relays are intended for automatic control of devices and processes requiring activation time delay or maintaining a required operating sequence of system elements. The relays are used in technological process control and automation solutions, for example, in ventilation, heating and air conditioning systems of residential and commercial buildings and industrial facilities, and to solve other tasks.

The product range of KEAZ time relays comprises a wide range of solutions, including both single-functional models with analogue parameter setting, and multifunctional devices, including ones with digital setting and data display on the screen.

### ► Designation





## OptiRel D TMR - DONF - MTD - 240U - 2



1	Product range name	OptiRel D
2	Product type name	TMR — time relays
3	Function	DON — turn-on delay DOF — turn-off delay DOFU — turn-off delay with no supply voltage DONS — star-delta ACY — cyclic ARD — cyclic with pause, for engine reverse DONF — multifunctional
4	Work algorithm	1T — single-command 2T — dual-command MT — multicommand MTD — multicommand with display
5	Rated supply voltage, V	230A — 230 V AC      240U — 12-240 V AC/DC
6	Number and type of output contacts	1 — 1 CO 2 — 2 CO 2I — 1 CO with adjustable delay + 1 CO instantaneous

### ► Items

Appearance	Function	Rated supply voltage	Time setting range	Number of output contacts	LED-indicator	Product name	Code
	Switch-on delay	230 V AC	0.1 s - 10 days (8 intervals)	1 CO	-	OptiRel D TMR-DON-1T-230A-1	332006
		230 V AC		2 CO	-	OptiRel D TMR-DON-1T-230A-2	332010
		12-240 V AC/DC		1 CO	-	OptiRel D TMR-DON-1T-240U-1	332008
		12-240 V AC/DC		2 CO	-	OptiRel D TMR-DON-1T-240U-2	332012
		12-240 V AC/DC		2 CO <sup>1)</sup>	-	OptiRel D TMR-DON-1T-240U-2I	332014
		12-240 V AC/DC		2 CO <sup>2)</sup>	-	OptiRel D TMR-DON-2T-240U-2	332029
	Switch-off delay	230 V AC	0.1 s - 10 days (8 intervals)	1 CO	-	OptiRel D TMR-DOF-1T-230A-1	332007
		230 V AC		2 CO	-	OptiRel D TMR-DOF-1T-230A-2	332011
		12-240 V AC/DC		1 CO	-	OptiRel D TMR-DOF-1T-240U-1	332009
		12-240 V AC/DC		2 CO	-	OptiRel D TMR-DOF-1T-240U-2	332013
12-240 V AC/DC		2 CO <sup>1)</sup>		-	OptiRel D TMR-DOF-1T-240U-2I	332015	
Switch-off delay with no supply voltage	12-240 V AC/DC	0.1 s - 10 min (4 intervals)	1 CO	-	OptiRel D TMR-DOFU-1T-240U-1	332016	
	Star-delta	12-240 V AC/DC	0.1 s - 10 min (4 intervals)	2 CO	-	OptiRel D TMR-DONS-1T-240U-2	332017

Appearance	Function	Rated supply voltage	Time setting range	Number of output contacts	LED-indicator	Product name	Code
	Cyclic	12-240 V AC/DC	0.1 s - 10 days (8 intervals)	1 CO	-	TMR-ACY-1T-240U-1	332030
	Cyclic with pause (Alternate load activation relays / Engine reverse relays)	12-240 V AC/DC	0.1 s - 99 days (digital setting)	1 CO	+	TMR-ARD-1T-240U-1	357858
	Multifunctional, 10 functions	12-240 V AC/DC	0.1 s - 10 days (8 intervals)	1 CO	-	TMR-DONF-MT-240U-1	332018
		12-240 V AC/DC		2 CO	-	TMR-DONF-MT-240U-2	332019
	Multifunctional, 20 functions	12-240 V AC/DC	0.1 s - 99 days (digital setting)	2 CO	+	TMR-DONF-MTD-240U-2	357856

Note:

<sup>1)</sup> One output contact has an adjustable delay, and the second one trips instantaneously regardless of the time settings.

<sup>2)</sup> Two output contacts have independent time delay settings and operate independently of each other.

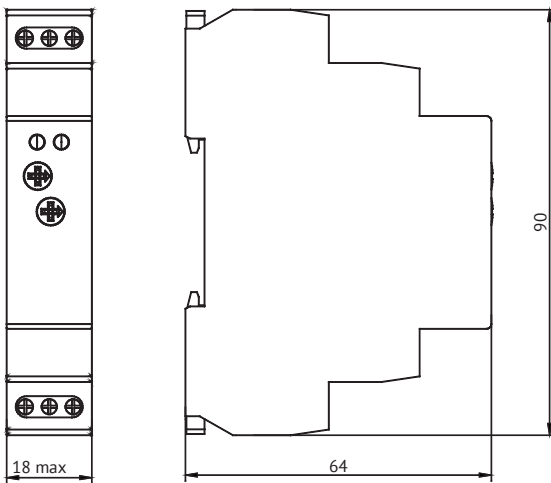
## ► Technical specification

Parameter		Value
Operating mode		continuous
Protection class in accordance with GOST 14254	provided by the enclosure	IP40
	on the output side	IP20
Rated insulation voltage $U_i$ , V		270
Rated impulse withstand voltage $U_{imp}$ , kV		4
Power outputs		A1-A2
Rated voltage of control circuit $U_n$ , V	240U	AC/DC: 12-240 (50-60Hz)
	230A	AC: 230 (50-60Hz)
Maximum input power, VA/W	240U	3 / 1,7
	230A	6 / 1,9
Supply voltage permissible tolerance, %		-15; +10
Rated operating current in AC-1 utilization category at 250 V, 50 Hz voltage, A		16
Rated operating current in AC-15 utilization category as per GOST IEC 60947-5-1 at 250 V, 50 Hz voltage		5
Minimum switching DC power, mW		500
Maximum switched voltage, B		AC: 250/DC: 24
Time delay range	DONF-MTD, ARD	0.1 s - 99 days, ON, OFF
	DON, DOF, ACY, DONF-MT	0.1 s - 10 days, ON, OFF
	DOFU, DONS	0.1 c - 10 min
Minimum control pulse, ms, min	ACY, ARD, DOF, DON, DONF, DONS	25
	DOFU	200
Reset time, ms, max		200
Temperature coefficient at 20 °C		0,05 %/°C
Time delay setting error, %		10
Time delay error, %		0,2
Restart delay duration, s		0,2
Mechanical wear resistance, ON/OFF cycles, min		1x10 <sup>7</sup>
Electrical wear resistance in utilization category AC-1, ON/OFF cycles, min		1x10 <sup>5</sup>

Parameter		Value
<b>Conductor connection</b>		
Flexible conductor with lug, mm <sup>2</sup>	1 conductor/2 conductors	1 – 2,5 / 0,75 – 1,5
Flexible conductor with no lug, mm <sup>2</sup>	1 conductor/2 conductors	1 – 2,5 / 0,75 – 1,5
Rigid conductor, mm <sup>2</sup>	1 conductor	1 – 4
	2 conductors	0,75 – 2,5
Stripped insulation length, mm		8
Screw tightening torque, N·m		0,4
Tool		Philips N°0 screwdriver or flat end screwdriver Ø4
<b>Operating conditions</b>		
Ambient temperature, °C	In operation	-20...+60
	In storage	-35...+75
Altitude above the sea level, max, m		2000
Pollution degree in accordance with GOST IEC 60255-27		2
Electromagnetic environment in accordance with GOST IEC 60255-26		B
Overvoltage category in accordance with GOST R IEC 60664-1		III

## ► Overall dimensions (mm)

OptiRel D TMR time relay with analogue setting



OptiRel D TMR time relay with digital setting

