

05/014

DIL ET Electronic Timing Relays

DATA SHEET 320-3967 320-4005
 covers: 320-3979 320-3920
 722-0533 320-3943
 722-0545 320-3931
 320-3980 320-3955
 320-3992

Moeller HPL 1999/2000 GB

Control relays, contact relays,
Electronic Timing Relays

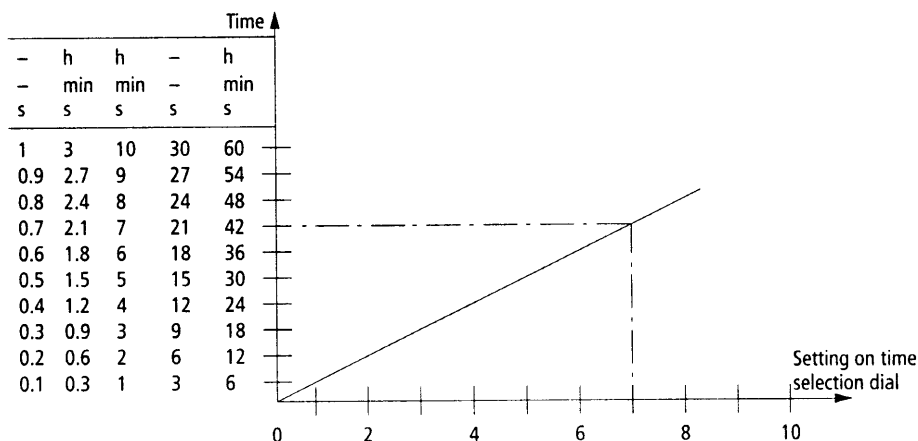
			24 - 240 V, 50/60 Hz, AC		346 - 440 V, 50/60 Hz, AC	
			24 - 240 V, DC			
Rated operational current I_e	Conv. therm. current I_{th}	Time range	Type	Price	Type	Price
AC-11			Article no.	See Price List	Article no.	See Price List
220V	380V					
230V	400V					
240V	440V					
A	A	A				Std. pack
Timing relay, On-delayed						
3	3	6	1.5 - 30 s	DIL ET 11-30-A 048878	DIL ET 11-30-W 048904	1 off
3	3	6	0.05 - 1 s	DIL ET 11-M-A 048886	DIL ET 11-M-W 048891	1 off
			0.15 - 3 s			
			0.5 - 10 s			
			3 - 60 s			
			0.15 - 3 min			
			0.5 - 10 min			
			3 - 60 min			
			0.15 - 3 h			
			0.5 - 10 h			
			3 - 60 h			
Multi-function relay with connection for remote potentiometer						
3	3	6	0.05 - 1 s	DIL ET 70-A 048893	DIL ET 70-W 048899	1 off
			0.15 - 3 s			
			0.5 - 10 s			
			3 - 60 s			
			0.15 - 3 min			
			0.5 - 10 min			
			3 - 60 min			
			0.15 - 3 h			
			0.5 - 10 h			
			3 - 60 h			

Notes

1) DIL ET 11 supplied with this function as standard

Time diagram

Approximate values, not applicable for remote potentiometer



Setting example

Read off from diagram:
 Time range of timing relay: 60 min
 Time required: 42 min
 Setting required on time selection dial: 7

Calculated as follows:

$$\frac{\text{Time required} \times 10}{\text{Time range of timing relay}} = \text{Setting on time selection dial}$$

$$\frac{42 \text{ min} \times 10}{60 \text{ min}} = 7$$

DIL ET Electronic Timing Relays

Notes

Type suffix	Actuating voltage printed on unit	
	V DC	V AC
-A	24 – 240	24 – 240, 50/60 Hz
-W	–	346 – 440 50/60 Hz
	Voltage tolerance:	
	V DC	V AC
-A	16.8 – 288	20.4 – 264
-W	–	294.1 – 484

Admissible cable length:

Cable unscreened Cable cross-section 0.5 – 1.5 mm ²	Connection to Y1/Y2 Z1/Z2
Two-core cable	250 m
Two-core cable in same cable duct as mains cable 50/60 Hz	50 m

Accessories:	Page
Sealable shroud	05/021
Remote potentiometer	05/022

Available functions¹⁾

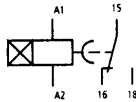
Terminal markings to EN 50 042



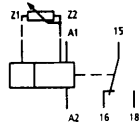
Potential-free contact
Do not apply voltage!

11

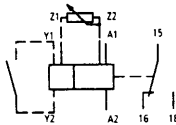
11



11, 21, 42, 81

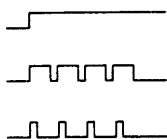


12, 16, 22, 82



flow diagrams

LED display

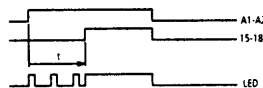


Time t not running
Contact 15 – 18 closed

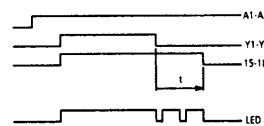
Time t running
Contact 15 – 18 closed

Time t running
Contact 15 – 18 open

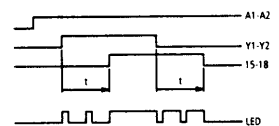
11 On-delayed



12 Off-delayed



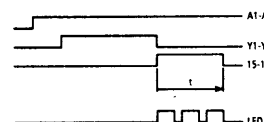
16 On- and Off-delayed



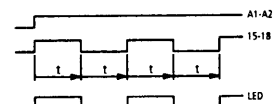
21 Fleeting contact on energization



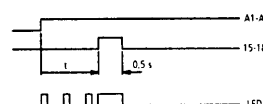
22 Fleeting contact on de-energization



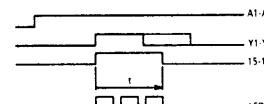
42 Flashing



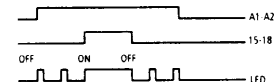
81 Pulse generating



82 Pulse shaping



ON-OFF function



DIL ET, ETR 4 Timing Relays

Technical Data

			DIL ET-A	DIL ET-W	ETR 4-A	ETR 4-W
Magnet systems						
Voltage tolerance						
AC-operated 50/60 Hz						
	Pick-up	Page	05/014	05/014	05/016	05/018
DC-operated ¹⁾ when taken directly from mains or transformer > 1000 VA						
	Pick-up	Page	05/014	05/014	05/016	05/018
Power consumption						
AC-operated 50/60 Hz						
	Pull-in	VA/W	2/-	0.5/-	2/-	0.5/-
	Sealing	VA/W	2/-	0.5/-	2/-	0.5/-
DC-operated						
	Pull-in	W	1.8	-	1.8	-
	Sealing	W	1.8	-	1.8	-
Duty factor		% DF	100	100	100	100
Maximum operating frequency		Ops./h	4000	4000	4000	4000
Minimum command time	AC/DC	ms	50/30	50/-	50/30	50/-
Voltage variation			0.01% ΔU	0.01% ΔU	0.01% ΔU	0.01% ΔU
Variation due to temperature fluctuation based on +20 °C			0.025	0.025	0.025	0.025
Repetition accuracy		%	0.1	0.1	0.1	0.1
Recovery time (after 100% time delay)		ms	70	70	70	70
Contact changeover time t_u		ms	-	-	4 (50) ²⁾	4 (50) ²⁾

Notes

¹⁾ Not DIL ET...-W

²⁾ ETR 4-51

DIL ET, ETR 4 Timing Relays

Technical Data

				DIL ET-A	DIL ET-W	ETR 4-A	ETR 4-W
General							
Standards				IEC/EN 60 255, VDE 0435, IEC/EN 60 947, UL, CSA			
Lifespan, mechanical							
AC operated	Operations	$\times 10^6$	30	30	30	30	30
DC operated	Operations	$\times 10^6$	30	30	30	30	30
Climatic proofing				Damp heat, constant, to IEC 60 068-2-3 Damp heat, cyclic, to IEC 60 068-2-30			
Ambient temperature							
Open	Min./Max.	°C	-20/+60	-20/+60	-25/+60	-25/+60	-25/+60
Enclosed	Min./Max.	°C	-20/+45	-20/+45	-20/+45	-20/+45	-20/+45
Mounting position				As required	As required	As required	As required
Mechanical shock resistance	Make contact	g	4	4	4	4	4
Degree of protection	Terminals		IP 20	IP 20	IP 20	IP 20	IP 20
Dimensions		Page	05/038	05/038	05/038	05/038	05/038
Weight		kg	0.09	0.09	0.1	0.1	0.1
Terminal capacity		Page	05/022 (as DIL ER)		05/025 (as ETS 4 VS 3)		
Contacts							
Rated impulse withstand voltage U_{imp}		V AC	6000	6000	6000	6000	6000
Overvoltage category/pollution degree			III/2	III/2	III/3	III/3	III/3
Rated insulation voltage U_i		V AC	600	600	600	600	600
Rated operational voltage U_e		V AC	440	440	440	440	440
Safe isolation to IEC 536 between coil and auxiliary contacts, and between the auxiliary contacts		V AC	250	250	250	250	250
Making capacity							
AC-14	$\cos \varphi = 0.3$	440 V	A	48	48	48	48
AC-15	$\cos \varphi = 0.3$	220 V	A	50	50	50	50
DC-11	$L/R \leq 40 \text{ ms}$		$\times I_e$	1.1	1.1	1.1	1.1
Breaking capacity							
AC-14	$\cos \varphi = 0.3$	440 V	A	3	3	3	3
AC-15	$\cos \varphi = 0.3$	220 V	A	3	3	3	3
DC-11	$L/R \leq 40 \text{ ms}$		$\times I_e$	1.1	1.1	1.1	1.1
Rated operational current I_e							
AC-14		440 V	A	3	3	3	3
AC-15		220 V	A	3	3	3	3
DC-11 ¹⁾ Above 110 V and at $L/R > 15 \text{ ms}$: it is essential that an arc-quenching device (RC suppressor) be used in parallel with the contacts. C: 1 μF , R: 0.5 Ω in series							
$L/R \leq 15 \text{ ms}$: e.g. contactor coils, solenoid valves, DC motors							
		24 V	A	1.5	1.5	1.5	1.5
		$L/R \leq 50 \text{ ms}$:	A	1.2	1.2	1.2	1.2
Conventional free air thermal current I_{th}			A	6	6	6	6
Short-circuit rating ²⁾ without welding							
Maximum fuse		A gL	6	6	6	6	6

Notes

¹⁾ Making and breaking conditions to DC-13, time constant as stated

²⁾ When taken directly from mains or transformer > 1000 VA