

05/014

DIL ET Electronic Timing Relays

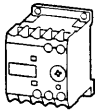
DATA SHEET 320-3967 320-4005  
 covers: 320-3979 320-3920  
 722-0533 320-3943  
 722-0545 320-3931  
 320-3980 320-3955  
 320-3992

Moeller HPL 1999/2000 GB

Control relays, contact relays, Electronic Timing Relays

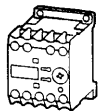
Rated operational current I <sub>e</sub>	Conv. therm. current I <sub>th</sub>	Time range	24 - 240 V, 50/60 Hz, AC		346 - 440 V, 50/60 Hz, AC	
			Type	Price	Type	Price
AC-11			Article no.	See Price List	Article no.	See Price List
220V	380V					
230V	400V					
240V	440V					
A	A	A				Std. pack

Timing relay, On-delayed



3	3	6	Time range	Type	Price	Type	Price	Std. pack
			1.5 - 30 s	DIL ET 11-30-A 048878		DIL ET 11-30-W 048904		1 off
			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



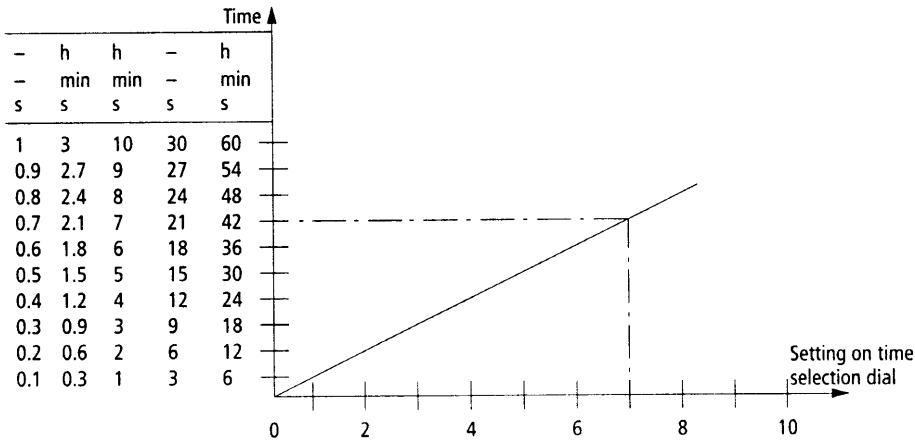
3	3	6	Time range	Type	Price	Type	Price	Std. pack
			0.05 - 1 s	DIL ET 70-A 048893		DIL ET 70-W 048899		1 off
			0.15 - 3 s					
			0.5 - 10 s					
			3 - 60 s					
			0.15 - 3 min					
			0.5 - 10 min					
			3 - 60 min					
			0.15 - 3 h					
			0.5 - 10 h					
			3 - 60 h					

Notes

<sup>1)</sup> 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

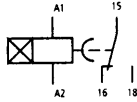
Control Relays, Contactor Relays, Electronic Timing Relays

Available functions<sup>1)</sup> Terminal markings to EN 50 042



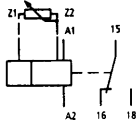
Potential-free contact  
Do not apply voltage!

11

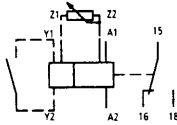


11

11, 21, 42, 81



12, 16, 22, 82



### 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

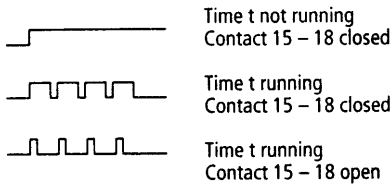
### Admissible cable length:

Cable unscreened Cable cross-section 0.5 – 1.5 mm <sup>2</sup>	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

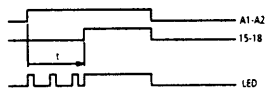
Accessories:	Page
Sealable shroud	05/021
Remote potentiometer	05/022

### flow diagrams

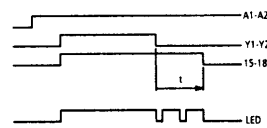
#### LED display



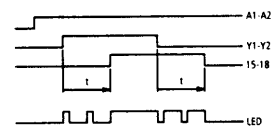
#### 11 On-delayed



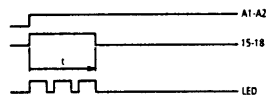
#### 12 Off-delayed



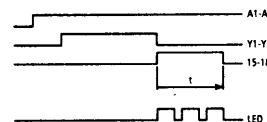
#### 16 On- and Off-delayed



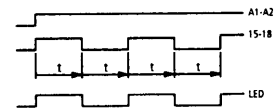
#### 21 Fleeting contact on energization



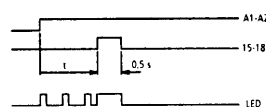
#### 22 Fleeting contact on de-energization



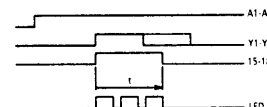
#### 42 Flashing



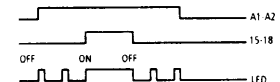
#### 81 Pulse generating



#### 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
<b>Magnet systems</b>						
Voltage tolerance						
AC-operated 50/60 Hz						
	Pick-up	Page	05/014	05/014	05/016	05/018
DC-operated <sup>1)</sup> 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% Δ U	0.01% Δ U	0.01% Δ U	0.01% Δ U
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) <sup>2)</sup>	4 (50) <sup>2)</sup>

**Notes**<sup>1)</sup> Not DIL ET...-W<sup>2)</sup> ETR 4-51

# DIL ET, ETR 4 Timing Relays

## Technical Data

				DIL ET-A	DIL ET-W	ETR 4-A	ETR 4-W	
<b>General</b>								
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
Degree of protection				Terminals	IP 20	IP 20	IP 20	IP 20
Dimensions				Page	05/038	05/038	05/038	05/038
Weight				kg	0.09	0.09	0.1	0.1
Terminal capacity				Page	05/022 (as DIL ER)		05/025 (as ETS 4 VS 3)	
<b>Contacts</b>								
Rated impulse withstand voltage $U_{imp}$				V AC	6000	6000	6000	6000
Overvoltage category/pollution degree					III/2	III/2	III/3	III/3
Rated insulation voltage $U_i$				V AC	600	600	600	600
Rated operational voltage $U_e$				V AC	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
<b>Making capacity</b>								
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	$L/R \leq 40$ ms		$\times I_e$	1.1	1.1	1.1	1.1	
<b>Breaking capacity</b>								
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	$L/R \leq 40$ ms		$\times I_e$	1.1	1.1	1.1	1.1	
<b>Rated operational current <math>I_e</math></b>								
AC-14		440 V	A	3	3	3	3	
AC-15		220 V	A	3	3	3	3	
DC-11 <sup>1)</sup> Above 110 V and at $L/R > 15$ ms: it is essential that an arc-quenching device (RC suppressor) be used in parallel with the contacts. C: 1 $\mu$ F, R: 0.5 $\Omega$ in series								
$L/R \leq 15$ ms: e.g. contactor coils, solenoid valves, DC motors								
		24 V	A	1.5	1.5	1.5	1.5	
$L/R \leq 50$ 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 <sup>2)</sup> without welding								
Maximum fuse				A gL	6	6	6	6

**Notes**

<sup>1)</sup> Making and breaking conditions to DC-13, time constant as stated

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