



Safe and reliable: Timing relays, measuring relays and monitoring relays



Our range of electronic timing relays includes two different designs, which can be easily adapted to a wide range of applications. All timing relays are mounted on DIN top-hat rails.

The EMR range of measuring and monitoring relays is approved for global use. Most of the relays feature multi-voltage coils. They cover a wide range of applications:

- Current monitoring relays for universal use,
- Phase monitoring relays to protect system components against damage,
- Phase sequence relays for monitoring the rotating field,
- Imbalance relays to safely detect phase failure,
- Multi-functional three-phase monitoring relays for compact monitoring of rotating fields,
- Level monitoring relays for fill-level monitoring,
- Insulation monitoring relays to increase operational safety.

**ETR timing relays –
precise and economic switching**



- Large selection of setting ranges
- Timing functions for every requirement
- Remote time setting via the integrated potentiometer
- Flexible connection thanks to wide-range power supply
- Additional signal input even for different control voltages



**Multi-functional three-phase monitoring relay –
compact monitoring of rotating fields**



- Protect motors by monitoring phase sequence, phase loss and phase imbalance, as well as overvoltage and undervoltage
- With optional monitoring of the neutral conductor
- The overvoltage and undervoltage threshold can be adjusted or set to fixed
- 2 changeover contacts for greater flexibility



**EMR insulation monitoring and level monitoring relay –
the right solution for every application**



- Improved safety with insulation monitoring relays for earth-fault monitoring
- Rapid troubleshooting to keep downtime to a minimum
- Test button for easy function testing
- Simple level monitoring and/or dry run protection
- Enhanced safety thanks to the open-circuit principle










**EMR single-phase current monitoring relay –
for universal use**



- Precise current monitoring in AC and DC networks
- Adjustable on-delay for bridging transitory current peaks
- Status display via colored LEDs
- The measurement range can be expanded via external current transformers













Function		Time range	Number of changeover contacts	Width mm	24 - 240 V AC, 50/60 Hz 24 - 240 V DC Part no. Article no.	400 V AC, 50/60 Hz Part no. Article no.										
On-delayed	Multi-functional	Off-delayed	Fleeting contact on energization	Fleeting contact on de-energization	Flashing, pulse-initiating	On- and off-delayed	Pulse-forming	Pulse-generating	Star-delta switching	Flashing, pause-initiating						
ETR4 timing relay																
	Changeover contact with a changeover time of 50 ms	-	-	-	-	-	-	-	-	✓	-	3 - 60 s	1	22.5	ETR4-51-A 031884	ETR4-51-W 031885
	Fixed timing function	✓	-	-	-	-	-	-	-	-	-	0.05 s - 100 h			ETR4-11-A 031882	ETR4-11-W 031883
	Adjustable timing functions	✓	✓	✓	✓	✓	✓	✓	✓	-	-				ETR4-69-A 031891	ETR4-69-W 031887
	With potentiometer connection Changeover contact can be converted to 2 timed contacts or 1 non-delayed contact and 1 timed contact	✓	✓	✓	✓	✓	✓	✓	✓	-	-	2	ETR4-70-A 031888		-	
												12 - 240 V AC, 50/60 Hz 12 - 240 V DC	24 - 240 V AC, 50/60 Hz 24 - 48 V DC			
ETR2 timing relay																
	Fixed timing function	✓	-	-	-	-	-	-	-	-	-	0.05 s - 100 h	1	17.5	-	ETR2-11 262684
		✓	-	-	-	-	-	-	-	-	-		2		-	ETR2-11-D 119426
		-	-	✓	-	-	-	-	-	-	-		1		-	ETR2-12 262686
		-	-	✓	-	-	-	-	-	-	-		2		-	ETR2-12-D 119427
		-	-	-	✓	-	-	-	-	-	-		1		-	ETR2-21 262687
		-	-	-	-	✓	-	-	-	-	-				-	ETR2-42 262688
	Pulse and pause times can be adjusted independently of one another	-	-	-	-	-	✓	-	-	-	✓			-	ETR2-44 262730	
	Adjustable timing functions	✓	✓	✓	✓	✓	✓	-	✓	-	-	✓			-	ETR2-69 262689
		✓	✓	✓	✓	✓	✓	-	✓	-	-	✓	2	ETR2-69-D 119428	-	

		For monitoring	Monitoring voltage per phase	Adjustable threshold values	Threshold value	Supply voltage	Part no. Article no.
		Phase sequence Phase failure Imbalance Overvoltage Undervoltage Neutral cable break	U_N V AC	Imbalance Overvoltage Undervoltage			
Phase sequence relay							
	For monitoring of three-phase networks Phase failure detection at $< 0.6 \times U_N$ Power supply via the measuring circuit	✓ ✓ - - - -	200 - 500 V AC, 50/60 Hz	- - -	-	200 - 500 V AC, 50/60 Hz	EMR6-F500-G-1 184789
Phase imbalance monitoring relay							
	Power supply via the measuring circuit On-delay: none = 0 or adjustable from 0.1 to 30 s Imbalance threshold values can be set to between 2 % and 25 % of the mean value of the phase voltages	✓ ✓ ✓ - - - ✓ ✓ ✓ - - -	160 - 300 V AC, 50/60 Hz 300 - 500 V AC, 50/60 Hz	✓ - - - ✓ - - -	- -	160 - 300 V AC, 50/60 Hz 300 - 500 V AC, 50/60 Hz	EMR6-A300-C-1 184761 EMR6-A500-D-1 184762
Phase monitoring relay							
Multi-functional Power supply via the measuring circuit On-delay/off-delay: none = 0 or adjustable from 0.1 - 30 s Imbalance threshold values can be set to between 2 % and 25 % of the mean value of the phase voltages							
		✓ ✓ ✓ ✓ ✓ ✓	90 - 170 V AC, 50/60 Hz	✓ ✓ ✓	U_{max} 120 - 170 V AC U_{min} 90 - 130 V AC	90 - 170 V AC, 50/60 Hz	EMR6-AWN170-E-1 184768
		✓ ✓ ✓ ✓ ✓ -	160 - 300 V AC, 50/60 Hz	✓ ✓ ✓	U_{max} 220 - 300 V AC U_{min} 160 - 230 V AC	160 - 300 V AC, 50/60 Hz	EMR6-AW300-C-1 184763
		✓ ✓ ✓ ✓ ✓ ✓	180 - 280 V AC, 50/60 Hz	✓ ✓ ✓	U_{max} 240 - 280 V AC U_{min} 180 - 220 V AC	180 - 280 V AC, 50/60 Hz	EMR6-AWN280-D-1 184770
22.5 mm	Automatic phase sequence correction	✓ ✓ ✓ ✓ ✓ ✓	180 - 280 V AC, 50/60/400 Hz	✓ ✓ ✓	U_{max} 240 - 280 V AC U_{min} 180 - 220 V AC	180 - 280 V AC, 50/60/400 Hz	EMR6-AWN280-K-1 184769
		✓ ✓ ✓ ✓ ✓ -	300 - 500 V AC, 50/60 Hz	✓ ✓ ✓	U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC	300 - 500 V AC, 50/60 Hz	EMR6-AW500-D-1 184764
		✓ ✓ ✓ ✓ ✓ ✓	300 - 500 V AC, 50/60/400 Hz	✓ ✓ ✓	U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC	300 - 500 V AC, 50/60/400 Hz	EMR6-AWN500-D-1 184771
	Automatic phase sequence correction	✓ ✓ ✓ ✓ ✓ -	350 - 580 V AC, 50/60 Hz	✓ ✓ ✓	U_{max} 480 - 580 V AC U_{min} 350 - 460 V AC	350 - 580 V AC, 50/60 Hz	EMR6-AWM580-H-1 184765
		✓ ✓ ✓ ✓ ✓ -	450 - 720 V AC, 50/60 Hz	✓ ✓ ✓	U_{max} 600 - 720 V AC U_{min} 450 - 570 V AC	450 - 720 V AC, 50/60 Hz	EMR6-AWM720-I-1 184766
45 mm		✓ ✓ ✓ ✓ ✓ -	530 - 820 V AC, 50/60 Hz	✓ ✓ ✓	U_{max} 690 - 820 V AC U_{min} 530 - 660 V AC	530 - 820 V AC, 50/60 Hz	EMR6-AWM820-J-1 184767
Voltage monitoring relay for three-phase networks							
	Power supply via the measuring circuit On-delay/off-delay: none = 0 or adjustable from 0.1 - 30 s	✓ ✓ - ✓ ✓ - ✓ ✓ - ✓ ✓ - ✓ ✓ - ✓ ✓ - ✓ ✓ - ✓ ✓ -	160 - 300 V AC, 50/60 Hz 300 - 500 V AC, 50/60 Hz 380 V AC, 50/60 Hz 400 V AC, 50/60 Hz	- ✓ ✓ - ✓ ✓ - - - - - -	U_{max} 220 - 300 V AC U_{min} 160 - 230 V AC U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC U_{max} 418 V AC, fixed U_{min} 342 V AC, fixed U_{max} 440 V AC, fixed U_{min} 360 V AC, fixed	160 - 300 V AC, 50/60 Hz 300 - 500 V AC, 50/60 Hz 380 V AC, 50/60 Hz 400 V AC, 50/60 Hz	EMR6-W300-C-1 184776 EMR6-W500-D-1 184779 EMR6-W380-L-1 184777 EMR6-W400-M-1 184778

Electronic relays

EMR6 measuring and monitoring relay

		For monitoring					Measuring range	Adjustable threshold values			Supply voltage	Part no. Article no.	
		Phase sequence	Phase failure	Imbalance	Overvoltage	Undervoltage	Neutral cable break	Imbalance	Overvoltage	Undervoltage			
Voltage monitoring relay													
	Monitoring of single-phase DC and AC networks On-delay: none = 0 or adjustable from 0.1 to 30 s Can be configured for over- or undervoltage monitoring Can be configured as open- or closed-circuit principle	-	-	-	✓	✓	-	3 ... 30 V 6 ... 60 V 30 ... 300 V 60 ... 600 V	✓	✓	✓	24 ... 240 V AC 50/60 Hz 24 ... 240 V DC	EMR6-VM600-A-1 184784
	Monitoring of single-phase DC and AC networks On-delay: none = 0 or adjustable from 0.1 to 30 s Can be configured for over- or undervoltage monitoring Threshold values can be configured for >U and <U Can be configured as open- or closed-circuit principle	-	-	-	✓	✓	-	3 ... 30 V 6 ... 60 V 30 ... 300 V 60 ... 600 V	✓	✓	✓	24 ... 240 V AC 50/60 Hz 24 ... 240 V DC	EMR6-VF600-A-1 184785
Level monitoring relay													
		For monitoring		Adjustable sensitivity range	Supply voltage	Width mm	Part no. Article no.						
	Can be switched between dry run protection and overflow protection	Fill level of conductive liquids		0.1 - 1000 kΩ	110 - 130 V AC 50/60 Hz 220 - 240 V AC 50/60 Hz	22.5	EMR6-N1000-N-1 184756						
	On-delay or off-delay: adjustable between 0.1 - 10 s	Fill levels of conductive liquids Mixture ratio of conductive liquids		0.1 - 1000 kΩ	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	22.5	EMR6-N1000-A-1 184757						
	-			5 - 100 kΩ	110 - 130 V AC 50/60 Hz 220 - 240 V AC 50/60 Hz	22.5	EMR6-N100-N-1 184758						
Insulation-monitoring relays													
	Status indication via LEDs Open-circuit principle Test or reset function either via a button on the device or via the control input Configurable fault memory/memory function Configurable non-volatile fault memory	Insulation resistance in non-earthed AC supply systems (2-, 3- or 4-phase systems) Insulation resistance in non-earthed DC supply systems (2- or 3-phase systems)		1 - 100 kΩ 0 - 250 V AC 0 - 300 V DC	24 - 240 V AC, 24 - 240 V DC	22.5	EMR6-R250-A-1 184772						
	Status indication via LED Open-circuit principle Test or reset function either via a button on the device or via the control input Configurable fault memory/memory function Configurable non-volatile fault memory	Insulation resistance in non-earthed AC supply systems (2-, 3- or 4-phase systems)		1 - 100 kΩ 0 - 400 V AC	24 - 240 V AC, 24 - 240 V DC	22.5	EMR6-R400-A-1 184773						

	For monitoring	Adjustable sensitivity range	Supply voltage	Width mm	Part no. Article no.	
Insulation-monitoring relays						
	Status indication via LED Open-circuit principle Test or reset function either via a button on the device or via the control input Configurable fault memory/memory function Configurable non-volatile fault memory Wire-break detection	Insulation resistance in non-earthed AC supply systems (3- or 4-phase systems) Insulation resistance in non-earthed DC supply systems (3-phase systems)	1 - 100 kΩ 2 - 200 kΩ Activated via DIP switch 0 - 400 V AC 0 - 600 V DC	24 - 240 V AC, 13.5 - 400 Hz 24 - 240 V DC	45	EMR6-R400-A-2 184774
	Coupling module For expanding the rated voltage range of the EMR5-400-2-A to 690 V AC or 1000 V DC No supply voltage necessary	-	-	-	45	EMR6-RC690 184775
Current monitoring relay						
	Monitoring of single-phase DC and AC networks Switching hysteresis adjustable from 3 - 30 % On-delay: none = 0 or adjustable from 0.1 to 30 s The measurement range can be expanded by means of current transformers	3 - 30 mA 10 - 100 mA 0.1 - 1 A	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	22.5	EMR6-I1-A-1 184790	
		0.3 - 1.5 A 1 - 5 A 3 - 15 A			EMR6-I15-A-1 184754	
	0.3 - 1.5 A 1 - 5 A 3 - 15 A	220 - 240 V AC, 50/60 Hz	EMR6-I15-B-1 184755			
	Monitoring of single-phase DC and AC networks On-delay: none = 0 or adjustable from 0.1 to 30 s Can be configured for over- or undervoltage monitoring Can be configured as open- or closed-circuit principle Multi-functional	3 - 30 mA 10 - 100 mA 0.1 - 1 A	24 - 240 V AC, 50/60 Hz 24 - 240 V DC		EMR6-IM1-A-1 184780	
		0.3 - 1.5 A 1 - 5 A 3 - 15 A			EMR6-IM15-A-1 184781	
	Monitoring of single-phase DC and AC networks On-delay: none = 0 or adjustable from 0.1 to 30 s Can be configured for over- or undervoltage monitoring Threshold values can be configured for >I and <I Can be configured as open- or closed-circuit principle	3 - 30 mA 10 - 100 mA 0.1 - 1 A			EMR6-IF1-A-1 184782	
0.3 - 1.5 A 1 - 5 A 3 - 15 A		EMR6-IF15-A-1 184783				
Temperature monitoring relay						
	Status display via LED Monitoring of overtemperature, undertemperature or of temperatures between two threshold values Sensor type: PT100 sensor	-50..+50°C	24 - 240 V AC 50/60 Hz 24 - 240 V DC		EMR6-T50-A-1 184786	
		0..+100°C			EMR6-T100-A-1 184787	
		0..+200°C			EMR6-T200-A-1 184788	