

timetron® - S series

2.5 mm width

DIN 3

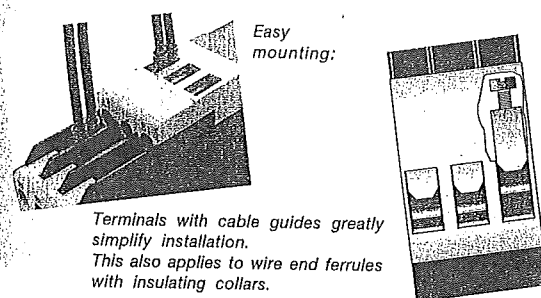
- ✓ 4 Multi-function relay
- ✓ 21 Single-function relay

- ☒ = Delay on operate
- ☒ = Delay on release
- ☒ = Delay on operate and release
- 1☒ = Single pulse on operate
- 1☒ = Single pulse on release
- ☒☒ = Flasher, starting with "ON"
- ☒☒ = Flasher, starting with "OFF"
- ☒☒ = Pulse generator TGS
- ☒☒ = Single pulse generator PGS
- ☒☒ = Starting with "ON" or with "OFF"
- △☒ = Star-delta changeover twice delayed on "ON"
- △1☒ = Star-delta changeover with wiper function
- △☒ = Star-delta changeover

S timetron® series CONCEPTION

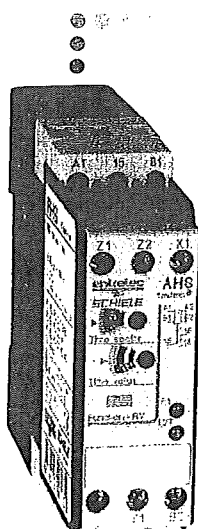
Due to their mature design, the timers timetron are the ideal timers for project engineers and service staff. The compact 12-terminal housing with the standardized width of 22.5 mm only needs a base area of 18 cm². To be able to realize all application possibilities in a housing with the dimensions 78 x 22.5 x 100 mm, latest technologies had to be used. The heart of the timer is a ASIC component in CMOS technology that covers about 800 gate equivalents and features analog and digital functions. The new technology guarantees a maximum timer accuracy which is nearly independent of temperature influences and voltage.

Double chamber screw clamps:



Multi-function relay

- with each 6 or 8 functions covered by one unit

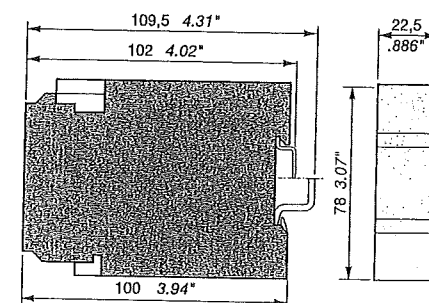


- large time range 0.05 s ... 300 h in every unit

- Voltage ranges from 24...240 V AC/DC or in 3 ranges 24 V, 42...48 V AC/DC, 110...240 V AC

Single-function relays

- with each 1 function



- alternatively with 1 or 2 c/o contacts
- 2nd c/o contact with selectable instantaneous function
- wide spectrum of applications
- Function start by external contact
- can be controlled by 2 or 3-wire proximity switches
- Timer stop (optionally) possible, at ERS timetron®, AHS timetron®, AWS timetron®, EAS timetron®, MBS timetron®, MFS timetron®
- 2 or 3 LED's for functional control
- Remote potentiometer connection: when connecting an external poti the internal poti is automatically switched off
- easy handling, direct setting possibilities, absolute scale for time adjustment, easy mounting
- great integrated label for marking
- sealable transparent cover (accessories), protection against unauthorized adjustment of time and function selections
- favourable cost/ performance ratio
- Cost-effective stock-holding due to reduction in types

Standards, data and accessories timer S series timetron®

The timetron range has been designed and developed in accordance with all relevant timer norms and standards.

Product norm: parts of IEC 255, IEC 1812-1
Electromagnetic compatibility: 93 / 68 / EWG
Low voltage directive: 93 / 68 / EWG

Shock vibration: IEC 68 part 2-6: 10 G
Environmental tests: IEC 68 part 2-30: 24 h cycle, 55°C, 93% rel, 96 h
Isolation tests:
Overvoltage category: III to VDE 0110, IEC 664; C to IEC 255-5
Pollution category: III to VDE 0110, IEC 664; C to IEC 255-5

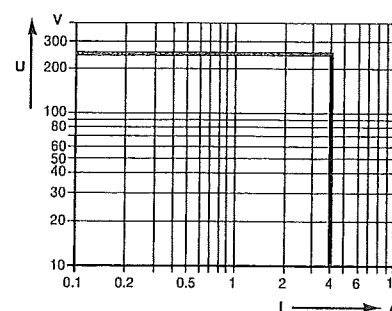
Test voltage: 2.5 kV / 50 Hz / 1 min. between all isolated circuits

EMC tests: EN 50082-2
ESD: IEC 1000-4-2, EN 61000-4-2 level 3 (6 kV / 8 kV)
HF radiation resistance: IEC 1000-4-3, EN 61000-4-3 level 3 (3 V / m)
Burst: IEC 1000-4-4, EN 61000-4-4 level 3 (2 kV 5 kHz)
Surge: IEC 1000-4-5, EN 61000-4-5 level 4 (2 kV L-L)
HF line influence: IEC 1000-4-6, EN 61000-4-6 level 3 (10 V)

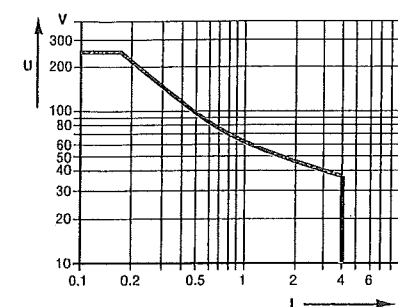
Test voltage VDE 0110, IEC 947-1 between all isolated circuits depending on supply:
Supply voltage up to 240 V: 300 V
Supply voltage up to 440 V: 500 V
Surge voltage test to VDE 0110, IEC 664 between all isolated circuits: 4 kV / 1.2 - 50 us

Load limit curve timetron® S series

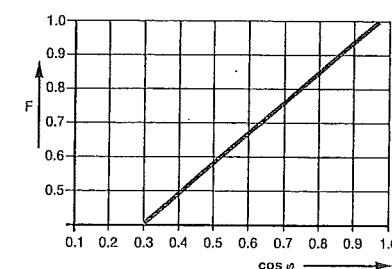
AC load (resistive)



DC load (resistive)

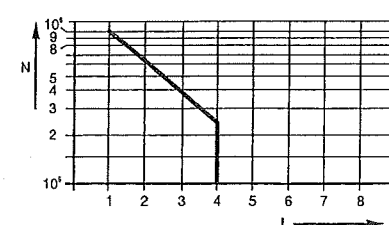


Reduction factor at inductive AC load



Reduction factor F at inductive load

Contact life

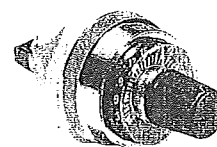


Contact life / operation N
220 V 50 Hz 1 AC
360 operations/h

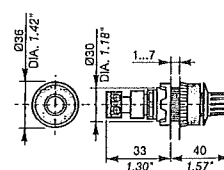
Accessories

Remote potentiometer

3 700 800 10

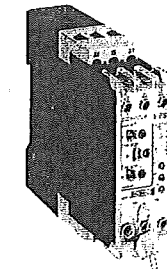


Remote potentiometer with absolute scale scale from 1 to 10 is enclosed Mounting diameter 30.5 mm Degree of protection IP 65 to be fastened with locking ring 50 kΩ ±20 % - 0.2 Ω

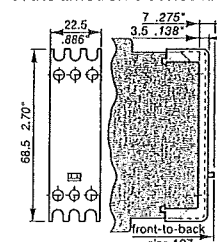


Sealable cover

3 440 005 01

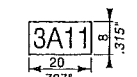


Sealable cover for all timers, measuring and monitoring relays of the timetron S series and mecotron with a width of 45 mm.



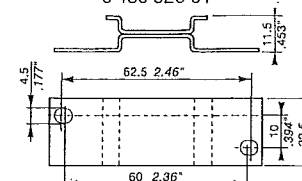
Marker label

4 366 017 01



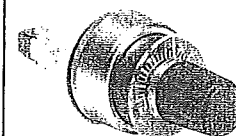
Adaptor for screw mounting

3 430 029 01

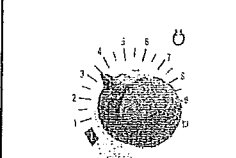
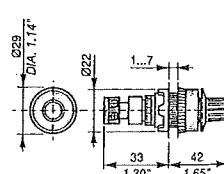


Remote potentiometer

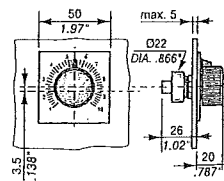
3 701 800 10



Remote potentiometer with absolute scale scale from 1 to 10 is enclosed Mounting diameter 22.5 mm Degree of protection IP 65 to be fastened with locking ring 50 kΩ ±20 % - 0.2 Ω



Remote potentiometer with absolute scale scale from 1 to 10 is enclosed Mounting diameter 10.5 mm Degree of protection IP 40 to be fastened with hexagon nut 50 kΩ ±20 % - 0.2 Ω



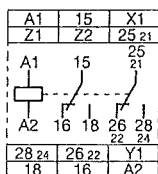
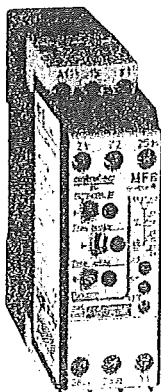
01 Technical data of the timers timetron®

The units LGS to AHS

timetron®		LGS	MFS	MBS	MBS	ERS	ERS	ERS	EAS	EAS	EVS	AHS	AHS
Output circuit													
1 c/o contact					X	X		X	X		X	X	
2 c/o contact with selectable instant. function			X	X			X			X			X
1 n/o contact		X											
Switching voltage	250 V AC	X	X	X	X	X	X	X	X	X	X	X	X
Switching current	4 A	X	X	X	X	X	X	X	X	X	X	X	X
Input circuit													
Supply voltage	24 V AC/DC	24 V DC	X	X	X	X	X	X	X	X	X	X	X
	42...48 V AC/DC				X		X	X	X	X	X	X	X
	110...240 V AC		X	X	X	X	X	X	X	X	X	X	X
	380...440 V AC			X	X	X	X						
	24...240 V AC/DC		X										
Tolerance of supply voltage													
Frequency													
Cycle													
Timing circuit													
10 time ranges in every unit		without	0.05...1 s		0.5...10 s		5.0...100s						
			0.15...3 s		1.5...30 s		15.0...300 s						
Smallest time range	s						0.05						
Greatest time range	h						300						
Recovery time	< ms						50			20		20	
Repetitive accuracy	< %						0.2						
Timing error within the tolerance of supply voltage							0.008 % / % ΔU						
Timing error within temperature range							< 0.07 % / °K						
Minimum energizing time	ms												
Ambient temperature/ storing temperature							-20°C ... +60°C / -40°C ... +85°C						
Control contact Y1-Z2 ¹⁾ / X1-Z2							no electrical isolation to the supply circuit						
No-load voltage	10...40 V DC		X	X	X			X	X	X	X	X	X
Switching current	< 1 mA		X	X	X			X	X	X	X	X	X
Max. contact resistance	≤ 1 KΩ		X	X	X			X	X	X	X	X	X
Remote potentiometer connection Z1/Z2 ¹⁾													
Potentiometer resistance	50 KΩ		X	X	X		X	X	X		X	X	
Display of operating status													
Supply voltage	LED green		X	X	X	X	X	X	X	X	X	X	X
Timing while timing													
Output relay I energized	LED red	X	X	X	X	X	X	X	X	X	X	X	X
Output relay II energized	LED red		X	X		X				X			X
Other details													
Mode of mounting							Snap-on mounting / screw mounting with adaptor						
Degree of protection	Housing						IP 50						
	Terminals						IP 20						
Mounting position							any						
Mechanical life (no. of operations)							30 Mio.						
Electr. life, resistive							0.1 Mio., 8 A 220 V AC						
Resistance to vibration							10 g/F = 55 Hz/a = ± 0.95 mm, 2 h per level						
Operational reliability							4 G						
Mechanical shock resistance							10 G						
Max. fuse rating							see product specific data						
Max. cable size							2 x 2.5 mm²						
Test voltage input circuit <-> output circuit							2.5 kV (ARS 2 kV)						
Terminals							12						
Weight, approx.							150 g						

¹⁾ The control contacts Y1-Z2 / X1-Z2 and Z1-Z2 must not be applied to potential; no electrical isolation to the input circuit.

Multi-function timer MFS timetron® with relay output



8 Functions

- 10 time ranges from 0.05 s ... 300 h in one unit
- 2 c/o contacts
- 2nd c/o contact with selectable instantaneous function
- Continuous voltage range 24...240 V AC/DC
- can be controlled by 3-wire proximity switch
- Remote potentiometer connectable
- Timer stop
- LED's to display operation status

10 time ranges in one unit

1 0.05 - 1 s*	6 15.0 - 300 s
2 0.15 - 3 s*	7 1.50 - 30 min.
3 0.50 - 10 s	8 15.0 - 300 min.
4 1.50 - 30 s	9 1.50 - 30 h
5 5.00 - 100 s	10 15.0 - 300 h

* In this time range no flashing of the green LED while timing.

Technical data

Input circuit

Supply power - power consumption	A1-A2	24...240 V AC/DC	-	2...2.5 VA / W
Tolerance of the supply power			-15 % ... +10 %	
Control contact connections	Y1-Z2		external timer start	
	X1-Z2		timer stop, time storage	

Control voltage of the control contacts		none, potential-free
Minimal controller pulse length		20 ms
Floating voltage at the control contacts		10...40 V DC
Maximal switching current in the control circuit		< 1 mA
Maximal cable length to the control inputs		50 m
Remote potentiometer connection	Z1-Z2	50 kΩ
Maximal cable length to the remote potentiometer		25 m shielded, shield connected to Z2

Duty time		100 %
Timing circuit		
Time ranges		0.05 s ... 300 h
Recovery time		< 50 ms
Repetitive accuracy (constant parameters)		< 0.2 %
Timing error within the tolerance of supply voltage		< 0.008 % / % ΔU
Timing error within temperature range		< 0.07 % / °C

Display of operational status		LED green steady / flashing while timing
Supply voltage/ timer		
1st output relay energised		LED red
2nd output relay energised		LED red
Output circuit	15-16/18, 25, 26-28	Relay, 1 c/o contact
Switching voltage		250 V AC
Switching current	AC 12 (resistive)	4 A (at 230 V)
Switching current	AC 15 (inductive)	3 A (at 230 V)
Switching current	DC 12 (resistive)	4 A (at 24 V)
Switching current	DC 13 (inductive)	2 A (at 24 V)

Maximal mechanical life		30 mio. operations
Maximal electrical life (to AC 12 / 230 V / 4 A)		0.1 mio. operations
Short-circuit proof, max. fuse rating		10 A / fast, operating class gL

General data		
Pulse voltage withstand U _{imp}		4 kV
Operating temperature		-25°C ... +65°C
Storage temperature		-40°C ... +85°C
Installation position		any
Mounting of DIN rail (EN 50022)		Snap-on mounting/ Screw mounting by adapter
Wire size stranded with wire end ferrule		2 x 2.5 mm ²
Weight		approx. 150 g



Operation

Timer for service and maintenance should be able to replace a number of devices with different functions, voltage and time ranges.

Here it is important to have an easy and reliable setting to keep failure times of machines and plants as short as possible.

With the multi function timer MFS timetron® in 22.5 mm width you have the right relay at every time and place and for every application.

Eight functions can be selected by a rotary switch which shows an international sign for every function, e. g. for "Delay on operate".

The ten time ranges from 0.05 s...300 h can also be selected by another rotary switch, the time range is each shown in a window. Setting the desired time value is then done with a potentiometer with absolute scale.

When connecting an external potentiometer the internal logic detects an occupied control input, and automatical the external resistance value is used.

Timing is displayed by a flashing green LED.

Approvals:

Supply voltage

24...240 V AC/DC

P/N:

2 430 010 02

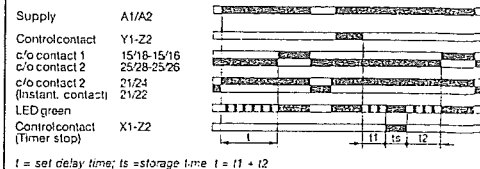
Accessories

Remote potentiometer	3 701 800 10
Sealable transparent cover	3 430 005 01
Adapter for screw mounting	3 440 029 01

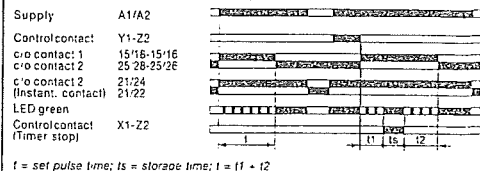
P/N:

8 Functions

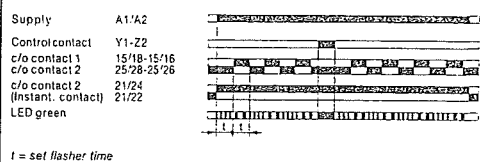
= Delay on operate



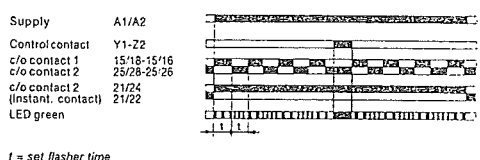
= Single pulse on operate



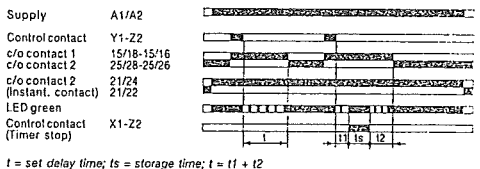
= Flasher, starting on "OFF"



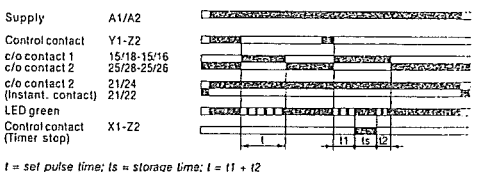
= Flasher, starting on "ON"



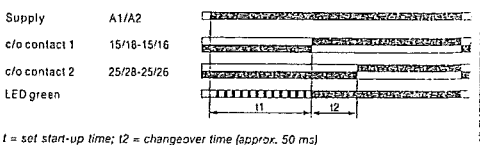
= Delay on release



= Single pulse on release



= Star-delta changeover twice delayed on operate



= Star-delta changeover with wiper function

