

## ZT 373a-E

### Description

The time module possesses two identical function units. The following description is given for one function unit; the other operates accordingly.

The module is used as a start-up delay.

The module is suitable for delay times from 0.1 s to 960 s.

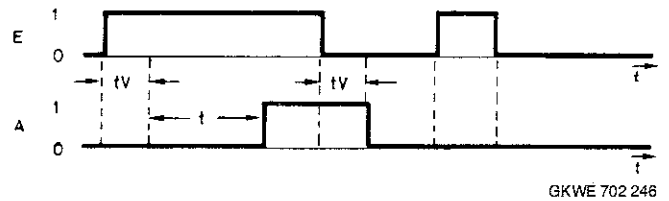
The time interval is adjusted by resistors R 1102, R 1103 and capacitor C 1101.

The timing circuit operates according to the counting principle. A binary counter counts the number of pulses delivered by an oscillator. The pulses to be counted are fixed. However the pulse length is nominated by resistors R 1102, R 1103 and capacitor C 1101. The timing circuit is started by applying a 1-signal at input E 1. The desired time interval expires when the counter has counted up the preset number of pulses and then a 1-signal appears at output A 1.

The input E 1 has a response delay of typically 6 ms as a precaution against disturbance pulses. The module is supplied calibrated for a delay time of 10 s which corresponds to a basic component selection of R 1102 = 100 k $\Omega$  and C 1101 = 0.68  $\mu$ F.

Connections X and Y can be used to provide supervision over missing p.c.b.s. in the rack. The module is connection compatible with the Universal time module (ZT 372).

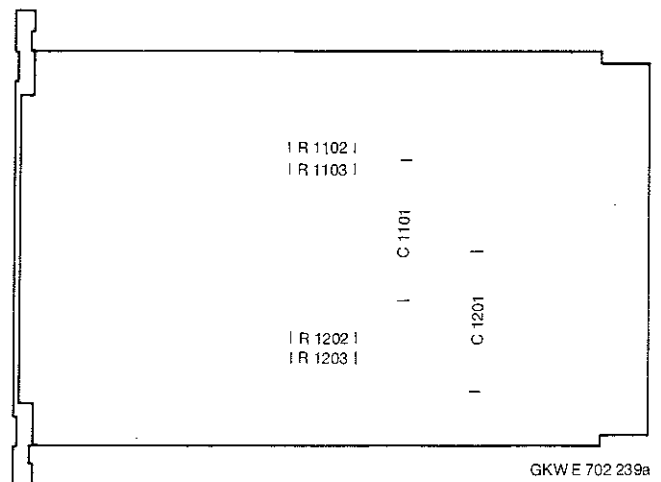
Below a complete timing diagram is given:



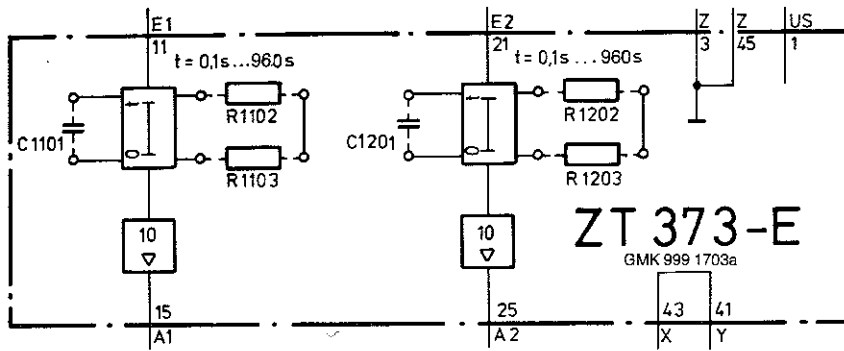
The response delay  $t_V$  = typically 6 ms can be ignored in comparison to the operating time  $t$ .

### Mechanical construction

Print size 3.5 E; 1 T  
Edge connector 1  
Weight ca. 0.15 kg



Function diagram



Technical data

In addition to system data the following values also apply:

Power supply

Operating supply voltage	US = 24 V d.c.
Current consumption at maximum output load	Is = 10 mA + output current at outputs A Is = 42 mA
Power dissipation	P = 0,2 ... 0,4W

After the operating supply voltage is switched on, the module indicates the following states:

0-signal at input:  
The timing circuit remains quiescent, a 0-signal appears at output A.

1-signal at input:  
The timing starts operating.

Internal function inhibit after switch-on of supply voltage  $\approx 0,1$  s

Recovery time for internal inhibit after failure of operating supply voltage. By failure of the operating voltage only effectively, when the time of failure  $\approx 1.5$  s

Input values

E 1, E2 1 NL

Output values

A 1, A 2 10 NL  
X, Y - Connections for supervision over missing p.c.b.s. 100 mA

Load capability

**Time interval adjustment**

Minimum adjustable time 0,1 s  
 Maximum adjustable time 960 s

Interval adjustment by resistors and capacitors  $t = 140 \text{ s} \cdot \frac{R}{M\Omega} \cdot \frac{C}{\mu F}$

	Resistors	Capacitor
Function unit 1	$R_{1102} + R_{1103} = R$	C 1101
Function unit 2	$R_{1202} + R_{1203} = R$	C 1201
Permissible values	$R = 100 \text{ k}\Omega \dots 1 \text{ M}\Omega$	$C = 6.8 \text{ nF} \dots 6.8 \mu\text{F}$

Recovery time  $\leq 30 \text{ ms}$

By calculation of times with the indicated formula should be consider a deviation of  $\pm 27\%$  in virtue of the components manufacturing tolerance.

**Tolerance of adjusted time intervals**

Equipped with R =  $\pm 2\%$  acc. XN 400 002  
 and C with  $\pm 10\%$  acc. XN 400 005:

Temperature influence  $\leq 1.55\% / 10 \text{ k}$   
 Repeatability  $\leq \pm 1.5\%$

In order to improve the accuracy or to increase the time interval, the following components can be used:

Resistor  $\pm 1.00\%$  acc. XN 400 324  
 Capacitor  $\pm 1.25\%$  acc. XN 400 662  
 $\pm 2.00\%$  acc. XN 400 015  
 $\pm 20.00\%$  acc. XN 400 009

Electrolytic capacitors may not be used.