

# Timers

## Start Attempt/Alarm

### Type S 109

CARLO GAVAZZI



- Automatic start
- No. of start attempts: 1-6
- Duration of attempts: 1.5-30 s
- Pause between attempts: 3-60 s
- Repeatability deviation:  $\leq 1\%$
- Separate relay contact for activation of start relay
- Separate relay for alarm if selected no. of start attempts fails
- Output: 2 x 10A SPDT relay
- Plug-in type module
- S -housing
- LED-indication for both relays on
- DC power supply

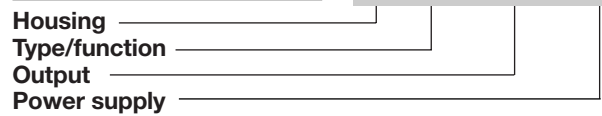
## Product Description

Start attempt/alarm, plug-in time relay with 2 separate output relays. Used when starting combustion engines connected to generators. May operate with 1-6 selectable

start attempts. Adjustable duration of start attempts and pulse between start attempts. Failure to start causes an output signal.

## Ordering Key

**S 109 256 712**



## Type Selection

Plug	Output	Time range	Supply: 9-29 VDC
Circular	2 x SPDT	Start attempts: 1.5 to 30 s Pause: 3 to 60 s	<b>S 109 256 712</b>

## Time Specifications

<b>Time ranges</b> Duration of start attempts, T1 Duration of pause, T2	1.5 to 30 s 3 to 60 s
<b>Time range accuracy</b>	0 to +10% max. min. actual time $\leq$ min. set time
<b>Repeatability deviation</b>	$\leq 1\%$
<b>Time variation</b> Within rated power supply and ambient temperature	$\leq 0.1\%/V$ $\leq 0.2\%/^{\circ}C$
<b>Reset</b> Time and/or relay	Power supply interruption min. 100 ms

## Supply Specifications

<b>Power supply DC types</b> Rated operational voltage through pins 2 & 10	Installation cat. III (IEC 60664) 712 12 to 24 VDC -25/+21% (pin 2 pos.)
Rated insulation voltage	None
Rated transient protection volt.	800 kV (1.2/50 $\mu$ s)
<b>Consumption</b>	125 mA

## Output Specifications

<b>Output</b> Basic electrical insulation	2 x SPDT 250 VAC (rms) (contact/elec., contact/contact)
<b>Contact ratings(AgCdO)</b> Resistive loads Smal inductive loads	$\mu$ (micro gap) 10 A/250 VAC (250 VA) 1 A/250 VDC (250 W) 10 A/25 VDC (250 W) 2.5 A/230 VAC 5 A/24 VDC
<b>Mechanical life</b>	$\geq 30 \times 10^6$ operations
<b>Electrical life</b>	AC1 $\geq 2.5 \times 10^5$ operations (at max. load)
<b>Operating frequency</b>	$\leq 7200$ operations/h
<b>Insulation voltages</b> Rated insulation voltage Rated transient protection volt.	2.0 kVAC (rms) (cont./elec.) 4 kV (1.2/50 $\mu$ s) (cont./elec.) (IEC 60664)



## General Specifications

<b>Power ON delay</b>	≤ 200 ms
<b>Power OFF delay</b>	≥ 100 ms
<b>Indication for</b> Output 1 ON Output 2 ON	LED, red LED, red
<b>Environment</b> Degree of protection Pollution degree Operating temperature Storage temperature	IP 20 B 2 (IEC 60664) -20° to +50°C (-4° to +122°F) -50° to +85°C (-58° to +185°F)
<b>Weight</b>	125 g
<b>Approvals</b>	UL, CSA

## Time Setting

### Time setting

Upper knob on housing:  
Duration of start attempts  
(T1): 1.5 to 30 s.



Lower knob on housing:  
Duration of pause between  
start attempts (T2): 3 to 60 s.

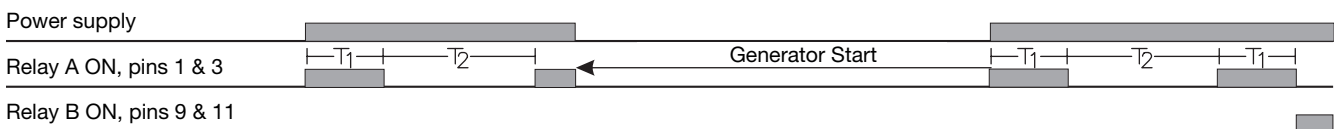
If more than one DIP-switch  
is ON, the lowest is given pri-  
ority.

### Number of start attempts

1 to 6 attempts, set on DIP-  
switches.  
DIP-switch 1 ON: 1 attempt.  
DIP-switch 2 ON: 2 attempts.  
Etc.

DIP-switches for selecting  
function are placed behind a  
small removable front plate  
on the time relay.

## Operation Diagram



## Accessories

Sockets◊	S 411
Hold down spring◊	HF
Mounting rack	SM 13
Socket covers	BB 4
Potentiometer lock	PL 2
Front mounting bezel	FRS 2

For further information refer to "Accessories".

## Mode of Operation

### Start function

The power supply is applied.  
Relay A operates immediately.  
After expiration of the set time  
period (T1), relay A releases  
for the set time period (T2).

The cycle with active periods  
and pause periods continues  
from 1 to 6 times as set on the  
DIP-switch or until power sup-  
ply is interrupted by generator  
start.

### Alarm function

Relay B changes to operating  
position after conclusion of  
the last failed start attempt  
(e.g. 2 set start attempts) and  
remains in this position until  
power supply is interrupted.

## Wiring Diagram

