

ST-210

Multi-function Asymmetrical Reset Timer

SLIMLINE

MONITORING RELAYS



ORDERING CODE

TYPE	MODEL	VOLTAGE	POWER SUPPLY	RELAY CONTACTS
ST	210	230V	AC	DP

SEE PAGE 60 FOR ORDERING OPTIONS

Application Examples

- Operation of air-piece extractors in multi-cycle machinery.
- Provision for cooling time on control circuit of point soldering machines.

Features

- Failsafe feature.
- 6 Programmable reset functions with hold or pulse reset or both, and power supply on reset
- Programmable in 6 independent overlapping time ranges up to 120 seconds.
- Direct interface with DC three-wire NPN sensor.
- High speed electronic reset.
- High repetitive accuracy.
- Time adjustment on calibrated scale, 0-100%.
- 5A double pole relay output (10A SPDT offered on request).

Description of Operation

The **ST-210** is a programmable multi-function, multi-range timer for high speed applications. Both the ON-cycle as well as the OFF cycle can be adjusted independently in 6 overlapping ranges. The unit interfaces directly with DC three-wire NPN sensors or potential free contacts providing high speed reset operation. The timer is reset by closing the contact between the reset input pin 5 and pin 7. If another reset occurs before the set time period has expired, the timers is set back to zero and a new timing cycle is initiated. This unit may be programmed to operate in one of the following modes:

A. Pulse Reset: When power is applied, the unit remains de-energised until a reset occurs. When the reset contact closes, the timing period T1 is initiated and the relay de-energised. When the timing period T1 has elapsed, the relay energises for second timing period T2. After T2 has elapsed, the relay de-energises. This sequence (T1 + T2) is referred to as the timing cycle. The relay remains de-energised until the next reset pulse.

B. Hold Reset: When power is applied, the unit remains de-energised until the reset contact is released. The release of the reset contact starts a single timing cycle (T1 + T2). If the reset contact is closed during or after the initial timing cycle (T1 + T2), the relay will de-energise. Once the reset contact is opened, another timing cycle (T1 + T2) is initiated.

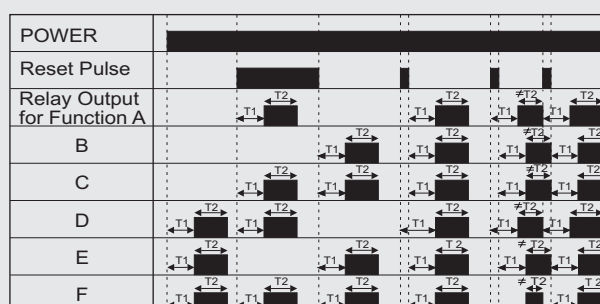
C. Pulse + Hold Reset: When power is applied, the unit remains de-energised until a reset occurs. When the reset contact closes, the first timing period T1 is initiated with the relay de-energised. When T1 has elapsed, the relay energises for the second timing period T2. When the reset contact opens, another timing cycle (T1 + T2) is initiated.

D. Power Supply + Pulse Reset: When power is applied to the unit, the first timing period T1 is initiated and the relay remain de-energised. When T1 has elapsed, the relay energises for the second timing period T2. If the reset contact is closed after the initial timing cycle, another timing cycle (T1 + T2) is initiated.

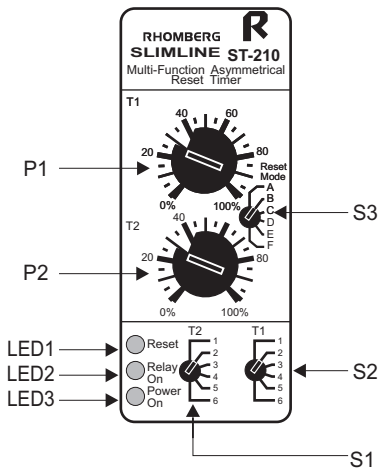
E. Power Supply + Hold Reset: When power is applied to the unit, the first timing period T1 of the cycle is initiated and the relay remains de-energised. When T1 has elapsed, the relay energises for the second timing period T2. If the reset contact is closed during or after the initial timing cycle (T1 + T2), the relay will de-energise. Once the reset contact is opened, another timing cycle (T1 + T2) is initiated.

F. Power Supply + Pulse + Hold Reset: When power is applied to the unit, the timing cycle (T1 + T2) is immediately initiated. Should the reset contact be opened or closed during or after the initial timing cycle, a new timing cycle (T1 + T2) is initiated.

Operational Diagram



Description of Controls



- P1: The **time setting of the first cycle** T1 is adjusted on P1. Maximum setting of 100% corresponds with the time scale selected on S1.
- P2: The **time setting of the second cycle** T2 is adjusted on P2. Maximum setting of 100% corresponds with the time scale selected on S2.
- S1: The **time range** of the first cycle is set on S1.
- S2: The **time range** of the second cycle is set on S2.
- S3: The **reset mode** is set on S3.
- LED 1: The LED marked “**Reset**” illuminates each time the reset input is activated, i.e. The reset contact is closed.
- LED 2: The LED marked “**Power on**” illuminates when power is applied to the unit.
- LED 3: The LED marked “**Relay on**” illuminates when the relay is energised.

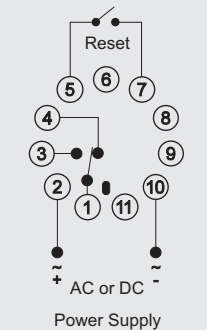
Wiring and Connection

Power Supply	
Phase/Positive	Pin 2
Neutral/Negative	Pin 10

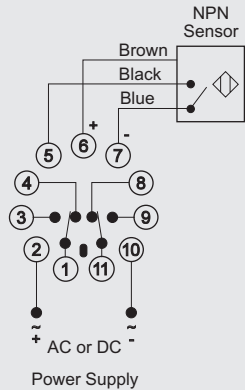
Relay Contacts SPDT	
Normally open	1 + 3
Normally closed	1 + 4

Relay Contacts DPDT	
Normally open	1 + 3
Normally closed	1 + 4
Normally open	11 + 9
Normally closed	11 + 8

Reset Input
Limit switch or contact to be connected between pin 5 and pin 7
DC NPN Sensor:
Brown wire to be connected to pin 6 (+)
Blue wire to be connected to pin 7 (-)
Black wire to be connected to pin 5
Note: For extended wiring, screened wire is recommended to eliminate erratic switching due to noise or electromagnetic interference. The screen should be connected to pin 7 or earth.



APPLICATION 1
Reset with a dry contact or switch



APPLICATION 2
Reset with a NPN DC sensor

Technical Specifications

POWER SUPPLY	
AC:	Supply voltage: 12, 24, 110, 230, 400, 415, 525V ±10% Isolation (reset to power supply): 2kV Power consumption: 3VA (approx.) 6VA for 400, 415, 525V (approx.)
DC:	Supply voltage: 10-30V, 48, 60, 110V DC ±15% Isolation: no galvanic isolation Power consumption: 100mA (10-30V) 30mA for higher ranges

RESET INPUT	
Reset time: 6ms	
Short circuit current: 2mA	
Open circuit voltage: 8,2V	
12V DC Output: Voltage tolerance: 10-15V DC	
Source current: 30mA (max.)	

Switch Position	Time Ranges:
1	- up to 1,8s
2	- up to 7,5s
3	- up to 15s
4	- up to 30s
5	- up to 60s
6	- up to 120s