

ST-200/ST-201 ST-202/ST-203

Unequal Cycling Timer

SLIMLINE

MONITORING RELAYS



ORDERING CODE

TYPE	MODEL	VOLTAGE	POWER SUPPLY	RELAY CONTACTS
ST	200	230V	AC	DP

SEE PAGE 60 FOR ORDERING OPTIONS

Application Examples

- Refrigeration plants for freezing cycle and defrost cycle.
- Centre pivoting for watering cycle and moving cycle on irrigation systems.
- Systems purging on boiler control panels.
- Chemical dosing and mixing.
- Conveyor transfer control for manual packaging.
- Material handling control in cutting application.
- Periodic lubrication control on equipment.
- Periodic moisture cycle control in catering equipment.

Features

- Failsafe feature.
- Programmable OFF-cycle first or ON-cycle first.
- Programmable in 6 independent overlapping time ranges.
- Time Ranges:

Type	Cycle-One	Cycle-Two
ST-200	up to 120 sec.	up to 120 sec.
ST-201	up to 120sec.	up to 240min.
ST-202	up to 240min.	up to 240min.
ST-203	up to 240min.	up to 120sec.

- Extended time ranges available up to 25 hours or 200 hours on special order.
- Extended supply voltage range: 10V to 30V AC/DC and 90V to 250V AC
- Separate off/on time adjustment on calibrated scale, 0-100%.
- High repetitive accuracy.
- 5A double pole relay output (10A SPDT offered on request).

Description of Operation

The **ST-200/ ST-201/ ST-202/ ST-203** are programmable multi-range, unequal cycling timers. Both the ON-cycle as well as the OFF-cycle can be adjusted independently in 6 overlapping ranges.

The units can be programmed to operate in either one of the following two modes:

1. Unequal Cycling, First Cycle OFF Operation:

When power is applied the relay will switch on and off repetitively, starting with the OFF-cycle. The LED will glow dimly while the relay is de-energised, and will come on brightly during the relay ON-cycle. The duration of the ON-cycle and the OFF-cycle can be adjusted independently. The range of adjustment can also be selected individually for both cycles.

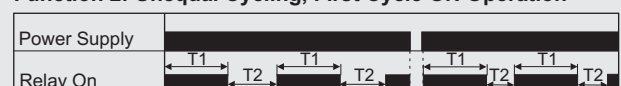
2. Unequal Cycling, First Cycle ON Operation (Pin 6 and 7 Linked): When power is applied the relay will switch on and off repetitively, starting with the ON-cycle. The LED will glow dimly while the relay is de-energised, and will come on bright during the relay ON-cycle. The duration of the ON-cycle and the OFF-cycle can be adjusted independently. The range of adjustment can also be selected individually for both cycles.

Operational Diagrams

Function 1: Unequal Cycling, First Cycle OFF Operation

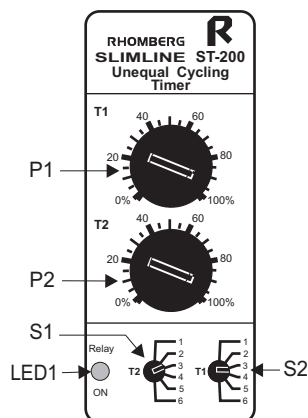


Function 2: Unequal Cycling, First Cycle ON Operation



T1 = Time setting of first cycle
T2 = Time setting of second cycle

Description of Controls



P1: The Time Setting of the first cycle is adjusted on P1. Maximum setting of 100% corresponds with the time selected on S1.

P2: The Time Setting of the second cycle is adjusted on P2. Maximum setting of 100% corresponds with the time selected on S2.

S1: The Time Range of the first cycle is set on S1, using a screwdriver.

S2: The Time Range of the second cycle is set on S2, using a screwdriver. See table below in General Specifications.

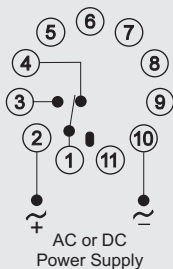
LED 1: The LED marked "Relay ON" glows dimly when power is on, but the relay is de-energised. The LED illuminates brightly when the relay is energised.

Wiring and Connection

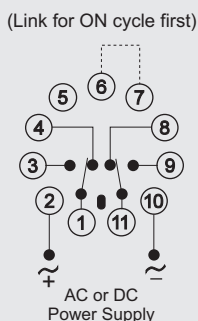
Power Supply	
Phase/Positive	Pin 2
Neutral/Negative	Pin 10

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

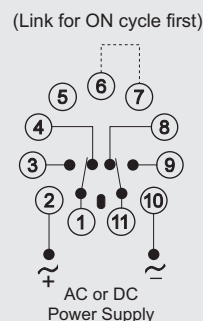
Relay Contacts DPDT	
Normally open	1 + 3
Normally closed	1 + 4
Normally open	11 + 9
Normally closed	11 + 8



APPLICATION 1
Single pole (SPDT) OFF-Cycle first



APPLICATION 2
Double pole (DPDT)
ON-Cycle first



APPLICATION 3
Double pole (DPDT)
Note: DPDT supplied as standard

Technical Specifications

POWER SUPPLY	
AC:	Supply voltage: 90-250V, 400, 415, 525V ±15% Power consumption: 3VA (approx.) 6VA for 415, 525V (approx.)
DC:	Supply voltage: 48, 60, 110V DC ±15% Power consumption: 30mA
AC/DC:	Supply voltage: 10-30V AC/DC Power consumption: 100mA
Reset:	Power supply to be interrupted for at least 0,5 seconds Extended time ranges available on special order: 6, 12, 5 and 25 hours 50, 100 and 200 hours.

Timer	T1	T2
ST200	A	A
ST201	A	B
ST202	B	B
ST203	B	A

A	
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

B	
Switch Position	Time Ranges:
7	- up to 220s
8	- up to 7,5m
9	- up to 15m
10	- up to 60m
11	- up to 120m
12	- up to 240m