

SM200, SMT200, SMT200-TR

TEMPERATURE SIMULATORS

A unique range of panel mounted temperature simulators designed for the control of impulse sealing machinery.

The controllers act as automatically variable timers by simulating the heating and cooling of the sealing tape and adjusting accordingly the impulse time of the next seal. This process results in consistent seal quality over a range of operating speeds.

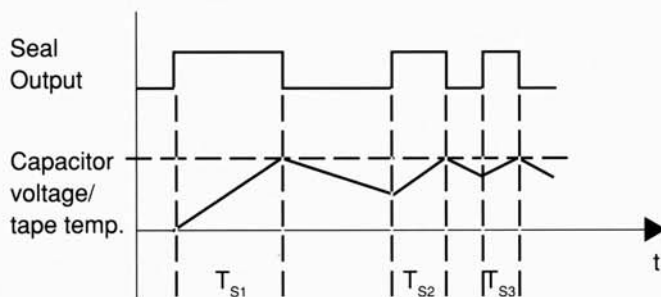
Packaging industry applications include L-sealers, form fillers and any process that uses impulse sealing technology.

Principles of Operation

The unit is powered up when the sealing machine begins its cycle, typically through use of a 'seal demand' microswitch. This results in energisation of the SEAL relay, feeding power to the sealing tape. A dual decade SEAL switch allows for initial adjustment of the impulse time.

Internally, a dc current of magnitude determined by the seal switch setting, charges an internal capacitor (simulating the heating of the tape). When the capacitor reaches a preset level the SEAL relay de-energises, removing power from the sealing tape. The internal capacitor then discharges at a rate determined by the TRIM adjustment (simulating the cooling of the tape).

When the next seal is required, the simulator is re-energised. The power impulse (T_s) supplied to the sealing tape (which controls the seal temperature) is set by the SEAL timing switch less an automatic adjustment for any residual charge on the capacitor.



In this way, the simulator electronically simulates the heating and cooling of the tape. Once the SEAL and TRIM controls have been set for the machine being used, the simulator will compensate for any residual heat in the sealing tape and maintain consistent seal quality, irrespective of process speed.

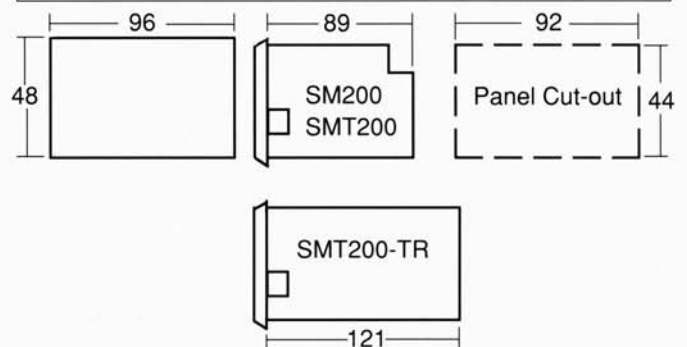
An additional COOL relay, fitted to SMT versions, allows for the control of jaw-lock solenoids, holding the work in position until the seal has set. The COOL relay is de-energised during the SEAL time and for a period (T_{cl}) thereafter, set by a single decade switch.



Product Specifications

	SM200	SMT200	SMT200-TR
Supply: nominal voltage power consumption simulator	110 or 240V ac (pin selectable)		
	<5VA		<5VA+ magnet load
timer	-		<10VA
Outputs: seal, cool & conveyor relays magnet rectifier (SMT200-TR only)	volt free SPCO contacts rated 5A @ 240V AC1, 3x10 ⁵ operations full wave rectified mains, 0.9A max.		
General: operating temperature weight	-10 to +55°C		<450g

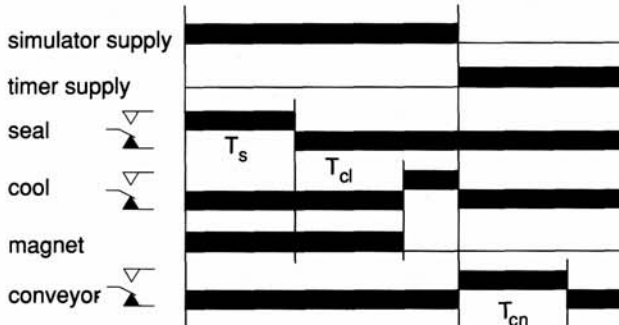
Dimensions (mm)



The SMT200-TR has three additional features:

- An on-board rectifier, for direct control of dc holding magnets during the seal and cool cycles.
- An independent conveyor timer, for automatic removal of the work-piece following the seal and cool periods. The conveyor time (T_{cn}) is set via a single decade switch on the front facia.
- A three decade seal switch, allowing for finer control of impulse seal time.

The control cycle is therefore:



All units incorporate two front facia LEDs, indicating when seal and cool relays are respectively energised.

Power is derived from either 110 or 240V ac (pin selectable). The units are designed for mounting in a DIN standard 44 x 92 mm panel aperture.

Setting up procedure:

1. Set cool time as required for material being used (SMT only): 0-9 is equivalent to approx. 0-2 seconds
2. Set conveyor time for workpiece (SMT200-TR only): 0-9 is equivalent to approx. 0-9 seconds
3. Set seal time to zero and trim to maximum (fully clockwise)
4. Run test seal. Increase seal time setting to achieve correct seal (0-99, or 0-999 on SMT200-TR, is initially equivalent to approx. 0-1.4 seconds, or 0-7 seconds where x5 link is used).
5. Set trim time to minimum, run machine to normal speed, then increase trim setting until correct seal is maintained. Low trim settings result in greater compensation (shortening) of seal time (incomplete seal); high settings result in less compensation of seal time (overheating of material).

Standard models are:

- SM200** Basic temperature simulator with seal time control.
- SMT200** As SM200 plus cool time relay.
- SMT200-TR** As SMT200 plus rectified output for holding magnets and conveyor timer.
- SM7** As SM200 but mounted in a plug-in, octal casing (please contact Modex for further details).

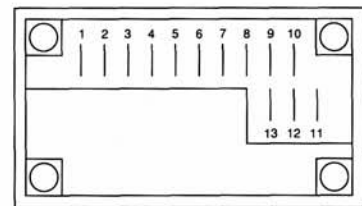
When ordering, please specify:

- a) Product type number

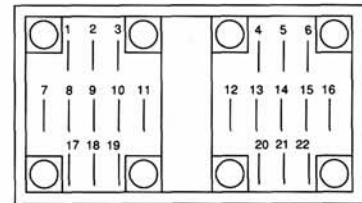
Connection

- 1. Normally Open
 - 2. Change over
 - 3. Normally Closed
 - 4. N
 - 5. 110Vac
 - 6. 240Vac
 - 7.
 - 8.
 - 9. Normally Closed
 - 10. Change over
 - 11. Normally Open
 - 12. — link 12 to 13 for
 - 13. — long seal time (x5)
 - 14. Normally Closed
 - 15. Change over
 - 16. Normally Open
 - 17. Magnet Output +ve
 - 18. Magnet Output -ve
 - 19. Not used
 - 20. N
 - 21. 110Vac
 - 22. 240Vac
- Groupings:
 - Cool relay (SMT only): 1, 2, 3
 - Simulator supply: 5, 6
 - Seal relay: 9, 10, 11
 - Timer relay: 14, 15, 16
 - SMT200 (TR) only: 17, 18
 - Timer supply: 21, 22

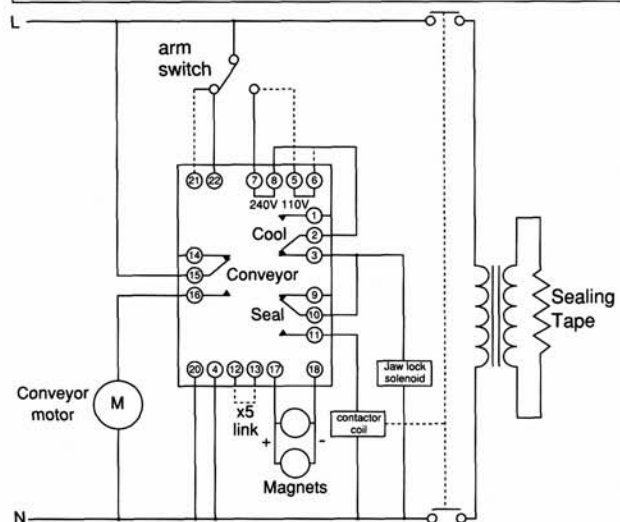
SM200/SMT200



SMT200-TR



Typical Application Circuit



FWMurphy

PO Box 470248
 Tulsa, Oklahoma 74147, USA
 tel: (918) 317 4100
 fax: (918) 317 4266
 email: sales@fwmurphy.com
 web: www.fwmurphy.com

CONTROL SYSTEMS AND SERVICES DIVISION
 PO Box 1819, Rosenberg, Texas 77471, USA
 tel: (281) 342 0297
 fax: (281) 341 6006
 email: sales@fwmurphy.com

MURPHY DE MEXICO S.A. DE C.V.
 Blvd. Antonio Rocha Cordero 300, Fracción del Aguaje
 San Luis Potosí, S.L.P. México 78384
 tel: + 52 444 8206264
 fax: + 52 444 8206336
 email: ventasmex@murphy.com.mx
 web: www.murphy.com.mx

FRANK W. MURPHY LTD.
 Church Rd, Laverstock, Salisbury, SP1 1QZ, UK
 tel: +44 1722 410055
 fax: +44 1722 410088
 email: sales@fwmurphy.co.uk
 web: www.fwmurphy.co.uk

MURPHY SWITCH OF CALIFORNIA
 41343 12th Street West,
 Palmdale, CA 93551-1442, USA
 tel: (661) 272 4700
 fax: (661) 947 7570
 email: sales@murphyswitch.com
 web: www.murphyswitch.com

MACQUARRIE CORPORATION
 1620 Hume Highway,
 Campbellfield, Victoria 3061, Australia
 tel: +61 3 9358 5555
 fax: +61 3 9358 5558
 email: murphy@macquarrie.com.au



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