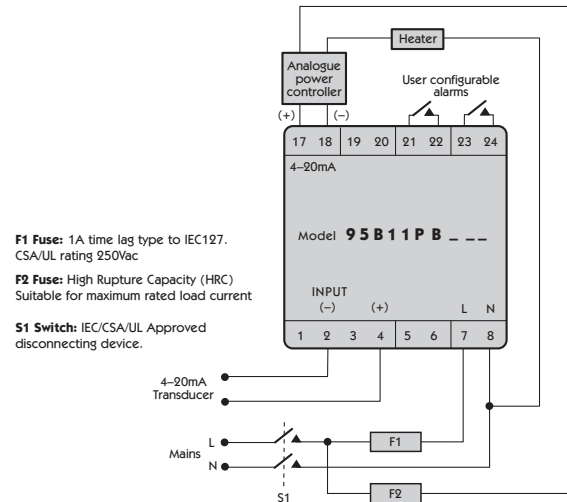


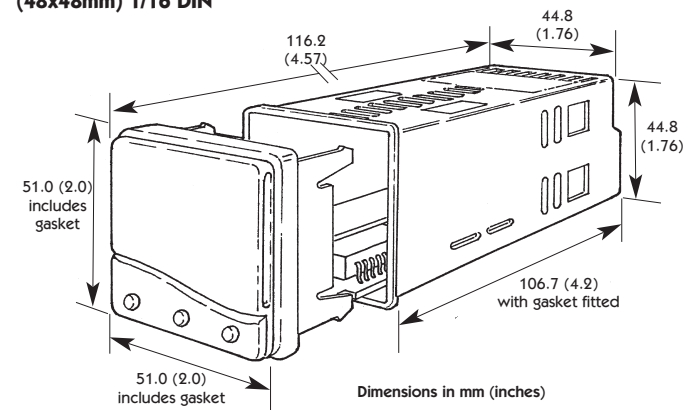
Typical Application

In this example the load temperature is monitored by a temperature transducer/transmitter which provides a 4–20mA input signal to the controller. The 4–20mA output has been allocated to SP1 to drive an SCR power controller providing a phase angle controlled output to the heater.



F1 Fuse: 1A time lag type to IEC127, CSA/UL rating 250Vac.
F2 Fuse: High Rupture Capacity (HRC) Suitable for maximum rated load current.
S1 Switch: IEC/CSA/UL Approved disconnecting device.

Model 9500P Dimensions (48x48mm) 1/16 DIN



Ordering information codes

| | | Code |
|-----------------------|----------------|-----------|
| Model | 48 x 48 mm | 95 |
| Outputs | SSd / relay | 00 |
| | relay / relay | 11 |
| | SSd / SSd | 22 |
| | 4-20mA / relay | B1 |
| | 4-20mA / ssd | B2 |
| | 0-5V / relay | C1 |
| | 0-5V / ssd | C2 |
| | 0-10V / relay | D1 |
| 0-10V / ssd | D2 | |
| Output 3 | Always relay | 1 |
| Programmer | | P |
| Inputs | Sensor | A |
| | 4-20mA | B |
| | 0-5V | C |
| | 0-10V | D |
| Communications | None fitted | 0 |
| | RS232 fitted | 2 |
| | RS485 fitted | 4 |
| Unused | | 00 |

Ordering example 1
 Model 9500P ssd/relay/relay outputs
 4-20mA input, RS485 fitted

95 00 1 P B 4 00

Ordering example 2
 Model 9500 with 4-20mA/ssd/relay
 outputs, sensor input, no comms

95 B2 1 P A 0 00

Codes for additional software and hardware

| | | | | | | |
|----------------------------|----------------------|----|----|---|---|---|
| CALgrafix | 10 | 03 | GB | 0 | 0 | 0 |
| Communications board RS232 | 3C | 00 | 00 | 2 | 0 | 0 |
| Communications board RS485 | 3C | 00 | 00 | 4 | 0 | 0 |
| RS232 to RS485 converter | 3C | 25 | 00 | 0 | K | 3 |
| CALpoll / CALvb | Available on the web | | | | | |

Your nearest CAL contact;



West Control Solutions
 The Hyde Business Park, Brighton BN2 4JU. UK
 Tel: + 44 (0) 1273 606271 Fax: + 44 (0)1462 592
 email: sales@cal-controls.co.uk
 http://www.cal-controls.com

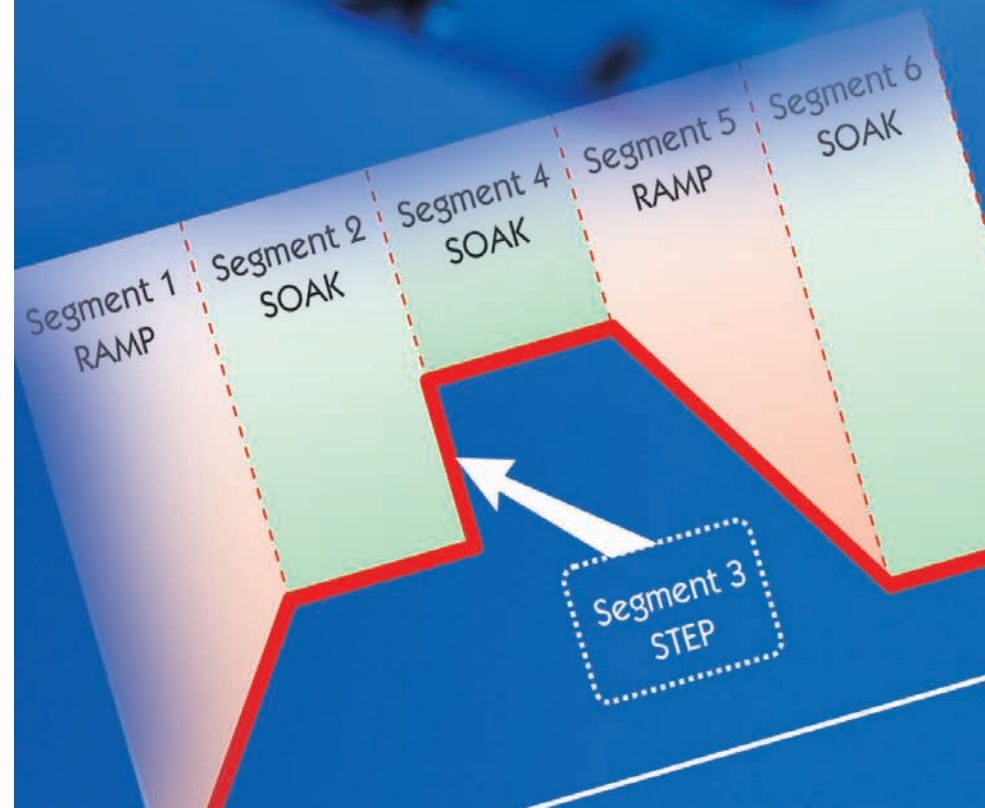
West Control Solutions
 1675 North Delany Road, Gurnee, IL 60031. USA
 Tel: (800) 866-6659 Fax: (847) 782-5223
 email: sales@cal-controls.com
 http://www.cal-controls.com

SLO00272 33061/06/1208

PC based programming utility available



The CAL 9500P Programmable Profiling Temperature & Process Controller



CAL Controls

The CAL 9500P Programmable Temperature / Process Controller with Communications & Software Support

The CAL 9500P programmable process controller

The CAL 9500P is a versatile programmable controller for temperature and process control applications. It is designed to offer the highest functionality in a 48mm x 48mm (1/16th DIN) package.

The 9500P can be factory configured in a range of process control or temperature control options making the controller dedicated to the application, ideal for both OEM and manufacturing process applications. This combination of programmable ramp/soak profiles, process control inputs and 3 outputs, together with RS232 or RS485 comms makes the CAL 9500P a unique and affordable package.

Note:
Standard colour is Jade Green, other colours are subject to minimum order quantities.



Controller functionality

- Full P.I.D. operation
- Autotune at 75% of set-point or at set-point
- Heat-cool operation
- RS232 or RS485 communications options
- CE, UL & CSA compliant

Inputs

- Thermocouples & RTD (PT100, 2 or 3 wire)
- Analogue – 0-20mA, 4-20mA, 0-50mV, 0-5V, 0-10V

Outputs (total of three outputs)

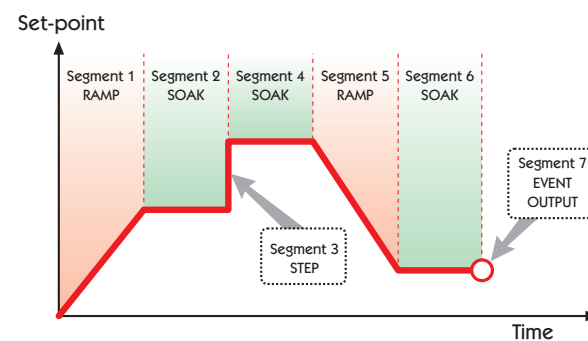
- Solid state relay drive (SSD) and Relays (2 amp)
- Analogue – 4-20mA, 0-5V, 0-10V

Programmer functionality

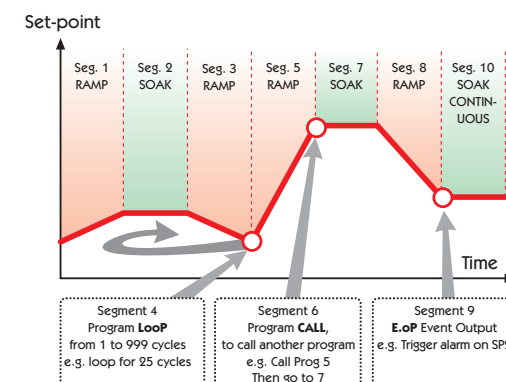
- Up to 31 programs (profiles)
- Up to 126 segments
- Unlimited use of event outputs via the 2nd and 3rd outputs
- Copy/Paste/Edit/Delete functions to simplify program building
- Call another program as a sub-program segment
- Up to 999 program loop cycles, or continuous loop cycling
- Hold back function, to ensure the next segment is not started until the last segment reaches the set-point
- 3 power fail recovery options, (Hold, Continue or Reset)
- Front panel interrogation of the program position
- Memory usage indication during programming.

(note: program capacity is a memory function and different types of segment use more/less memory).

Profile of a single program



The CAL 9500P is potentially **the most versatile and flexible controller** in its size and price range. The program below shows what is possible from this unique controller.



CAL 9500P Specifications

| | |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thermocouple | |
| 9 types: | B, E, J, K, L, N, R, S, T |
| Standards: | IEC 584-1-1 : EN60584-1 |
| CJC rejection: | 20:1 (0.05 ^o /°C) typical |
| External resistance: | 100Ω maximum |
| Resistance thermometer | |
| RTD/Pt100 | 2 or 3 wire |
| Standards: | IEC751: EN60751 (100Ω 0°C/138.5Ω 100°C Pt) |
| Bulb current: | 0.2mA maximum |
| Analogue process inputs | 0 to 50mV, +/- 0.1%. 0-20mA, 4-20mA, +/- 0.1%. 0-5V, +/- 0.1%. 0-10V, +/- 0.1% |
| Applicable to all Thermocouple and RTD inputs (SM =sensor maximum) | |
| Calibration accuracy: | +/- 0.25%SM +/- 1°C |
| Sampling frequency: | input 10Hz, CJC 2 sec. |
| Common mode rejection: | Negligible effect up to 140dB, 240V, 50-60Hz |
| Series mode rejection: | 60dB, 50-60Hz |
| Temperature coefficient: | 50ppm/°C SM typical |
| Reference conditions: | 22°C +/- 2°C, rated voltage after 15 minutes settling time. |
| Output devices (check configuration) | |
| SSd1 and SSd2: | Solid state relay driver: To switch a remote SSR 6Vdc (nominal) 20mA non-isolated |
| Relay 1,2,3 | Miniature power relay: Form A/SPST contacts (AgCdO): 2A/250Vac resistive load |
| Analogue output: | 4-20mA 500Ω max +/- 0.1% full scale typical 0-5Vdc 10mA (500Ω min) +/- 0.1% full scale typical 0-10Vdc 10mA (1KΩ min) +/- 0.1% full scale typical |
| General | |
| Displays: | Upper, 4 Digits, high brightness green LED. 10mm (0.4") high. Lower, 4 Digits, high brightness orange LED 9mm (0.35") high. Digital range -199 to 9999. Hi-res mode -199.9 to 999.9. LED output indicators - SP1 square, green; SP2/SP3 round, red |
| Keypad: | 3 elastomeric buttons |
| Programmer functions: | |
| Segments: | Total of 126 per program |
| Programs: | Maximum of 31 programs |
| Program memory: | 351 Bytes (see memory allocation table) |
| Environmental | |
| Humidity: | Max 95% non-condensing |
| Altitude: | up to 2000M |
| Installation: | Categories II and III |
| Pollution: | Degree II |
| Protection: | NEMA 4X, IP66 (Front panel only) |
| EMC emission: | EN50081-1 FCC Rules 15 subpart J Class A |
| EMC immunity: | EN50082-2 |
| Ambient: | 0-50°C (32-130°F) |
| Mouldings: | flame retardant polycarbonate |
| Weight: | 180g (6.4 oz) |
| Safety: | EN61010-1/CSA22.2 No 1010.1 92 (see users manual) |
| Dimensions | |
| Front facia: | 51.0 x 51.0mm (2.0" x 2.0") (includes gasket) |
| Sleeve length: | 106.7mm (4.2") (with gasket fitted) |
| Instrument body: | 44.8 x 44.8mm (1.76" x 1.76") |
| Overall length: | 116.2mm (4.57") |
| Supply Voltage: | 100-240Vac, 50-60Hz +/- 10% maximum permitted fluctuation |
| Power Requirements: | 6.0VA (nominal) |

Visit our website for - pdf technical manuals, application notes, tutorials and much more