

Product Brochure

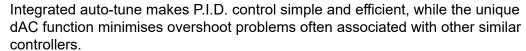
The CAL range of temperature controllers



3300, 9300 & 9400 Controllers with RS232/485 Communication

The CAL range of temperature controllers are designed to be easy to use, low cost and reliable in the most demanding applications, including plastics, packaging, drying and laboratory equipment.

- Easy-to-use auto-tune program
- Simple menu-driven programming
- Full P.I.D. operation
- Single ramp/soak (dwell) program
- Heat/cool operation
- IP66 protection
- CE, UL, FM



Inputs and Outputs:

- Thermocouple and PT100 (2 wire)
- Two outputs: SSR and/or Relay
- 5 alarm modes, full scale (high or low), deviation (high or low) & band
- RS232 or RS485 MODBUS communications RTU (retrofittable)



9400



9300



3300

9500P - Temperature and Process Controller



The 9500P is a uniquely versatile and affordable controller with profiler for temperature and process applications. It is designed to offer the optimum functionality in a 48mmx48mm (1/16th DIN) package.

The 9500P shares the same features as the 3300, 9300 and 9400 and also offers:

Programmer functionality

- Up to 31 programs (profiles)
- Up to 126 segments
- 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 segments use more or less memory).

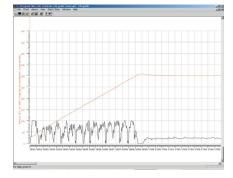
Inputs and Outputs:

- Input: Thermocouple PT100 (2 or 3 wire), 4-20mA, 0-5V or 0 to 10V
- 3 Outputs: Relay, SSD, 4-20 mA 0-5V and 0 to 10V

Process Monitoring and Configuration Software

Cost-effective process monitoring and controller configuration software, providing even greater value to CAL's range of temperature controllers. With powerful functions including data logging and process data archiving, chart recorder, virtual instrument display and on-screen alarm and display, CALGrafix software is the ideal solution for control of critical data, for quality control, and health and safety and machine development and build.

All features integrate seamlessly within one single user interface, providing total configuration features for ultimate control and even cloning of instrument settings.



Advantages of using CALgrafix:

- Reduce installation time quick and simple controller configuration
- · Access to detailed process data via the charting and logging features
- Lower cost alternative to SCADA
- · Simple set up, no programming skills required
- · Reduce changeover time for different process recipes

Configuration:

- · Parameter set-up of 33/93/9400 and 9500P controllers
- Click and drag graphical profile set-up for 9500P controllers
- Multiple programs and profiles can be saved and recalled for various applications

9500P

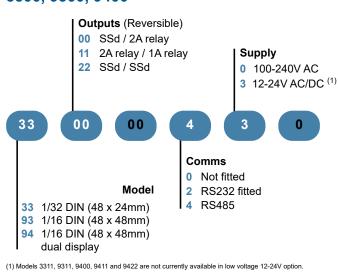
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 Instrument setting cloning reduces set up time

CALgrafix Applications:

- Environmental and test chambers
- · Plastic injection and extrusion machines
- Ovens, autoclaves, furnaces, and kilns
- Scientific research and testing
- Food processing equipment and your application

Ordering information 3300, 9300, 9400



Outputs 1 & 2 00 SSd / relay 11 relay / relay 22 SSd/SSd B1 4-20mA / relay B2 4-20mA / SSd C1 0-5V / relay

Inputs C2 0-5V / SSd A Sensor (thermocouple or RTD) D1 0-10V / relay B 4-20mA D2 0-10V / SSd

00

Output 3

1 Relay

C 0-5V D 0-10V

Comms

В

0 Not fitted

2 RS232 fitted

00

4 RS485 fitted

Accessories

CALgrafix software



Communications board RS485

3C 00

Communications board RS232



RS232 to RS485 converter



Technical Specifications

hermocouple	9 types: Type B,E,J,K,L,N,R,S,T
Standards	IEC 584-1-1: EN60584-1
CJC rejection	20:1 (0.05°)°C) typical
xternal resistance	100Ω maximum
Resistance Temperature Detector – (RTD)	3300 / 9300 / 9400: PT100 2 wire, 9500P: PT100 2 or 3 wire
Standards	IEC751: EN60751 (100Ω 0°C/138.5Ω 100°C Pt)
Bulb current	0.2mA maximum
inear process inputs	Analogue process inputs 0 to 50mV, +/- 0.1%. 9500P: 0-20mA, 4-20mA, +/- 0.1%. 0-5V, +/- 0.1%. 0-10V, +/- 0.1%
applicable to all Thermocouple and RTD in	puts (SM =sensor maximum)
alibration accuracy	±0.25%SM ±1°C
ampling frequency	Input 10Hz, CJC 2 sec
common mode rejection	Negligible effect up to 140dB, 240V, 50-60Hz
Series mode rejection	60dB. 50-60Hz
emperature coefficient	3300 / 9300 / 9400: 150ppm/°C SM, 9500P: 50ppm/ °C SM typical
eference conditions	22°C ±2°C, rated voltage after 15 minutes settling times
output devices	12 C 12 O, diod folder of the first of the f
Sd	SSM and SSM2: Solid atota rolay driver: To exist by a remote SSD 61/de (nominal) 45mA page instant
ou .	SSd1 and SSd2: Solid state relay driver: To switch a remote SSR 6Vdc (nominal) 15mA non-isolated
liniature power relay	Relay 1,2,3 Miniature power relay: Form A/SPST contacts (AgCdO): 2A/250Vac resistive load. 3300 / 9300 / 9400: Relay 1, 2 only
inear outputs: 9500P only	Analogue output: 4–20mA 500Ω max +/- 0.1% full scale typical, 0–5Vdc 10mA (500Ω min) +/- 0.1% full scale typical, 0–10Vd 10mA (1KΩ min) +/- 0.1% full scale typical
Seneral	in the first standy in the section species of the section stands and the section secti
eneral	Main (upper) display:, 4 digits high brightness green LED, 10mm high
Displays	
FD 1 1 1 1 1 1 1 1 1	Lower display 9400 / 9500P: 4 digits high brightness orange LED, 9mm high
ED output indicators	Flashing SP1 square, green, SP2 round red
eypad	3 full travel elastomeric buttons
nvironmental	
afety	UL 873, EN 61010, CSA 22.2 No. 1010.1-92
umidity	Max 95% non-condensing
ltitude	Up to 2000m
stallation	Categories II and III
ollution	Degree II
rotection	NEMA 4X, IP66
MC emission	EN50081-1, FCC Rules 15 subpart J Class A
MC immunity	EN50082-2
mbient	0–50°C
louldings	Flame retardant polycarbonate
Dimensions	
ront facia Models	9300 / 9400 / 9500P: 51.0 x 51.0mm (includes gasket). 3300: 51.0 x 28.5 (includes gasket)
ontroller depth All models	106.7mm (with gasket fitted)
ascia dimensions	9300 / 9400 / 9500P: 44.8 x 44.8mm, 3300: 44.8 x 22.0mm
verall length	All models – 116.2mm
/eights	3300 : 110g, 9300 : 120g, 9400 : 130g, 9500P : 180g (6.4oz)
upply Voltage	100–240Vac, 50–60Hz +/- 10% maximum permitted fluctuation, 12V - 24V (AC/DC) +/-20% 4.5 VA Polarity not required
igital range: 9500P only	199 to 9999. Hi-res mode -199.9 to 999.9
rogrammer: 9500P only	100 0 0000.1 100 mede -1000 to 0000
egments	Total of 126 per program
	.,
Programs	Maximum of 31 programs
rogram memory	351 Bytes

Contact

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