

3500

MODELS



Atmosphere Furnace Controller/Programmer

Application Note

Ideal for :

- Carburising furnaces
- Endothermic generators
- Sintering furnaces
- Incinerators
- Ceramic kilns

Features :

- Zirconia probe input
- Temperature
- Carbon, dewpoint or oxygen
- Probe cleaning
- Probe diagnostics
- Maths and logic
- Open communications

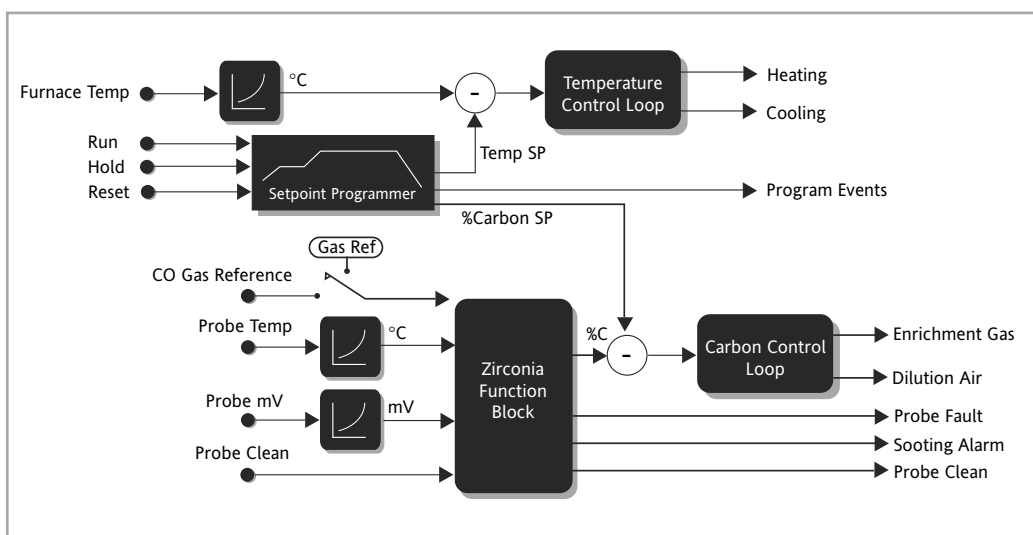
The 3500 is a fully programmable controller suitable for precision control of temperature, carbon potential, dewpoint and oxygen in atmosphere heat treatment applications.

It is capable of being used solely to control the carbon potential, dewpoint or oxygen in a furnace, or as an integrated furnace controller where any of these variables are controlled in conjunction with temperature. Additional features provide maths and combined logic functions.

At the heart of the controller is a specially designed function block capable of accepting most zirconia probes. Standard features include an automatic probe cleaning routine, a sooting alarm and diagnostics indicating that the probe is about to fail and should be replaced.

For standard solutions controllers can be configured with features and user screens as described in this application note.

User customisation can be achieved by reconfiguring the unit either via the front panel or the comprehensive PC based Eurotherm iTools. A complete data sheet on the dual loop version of the 3500 is available HA029045.



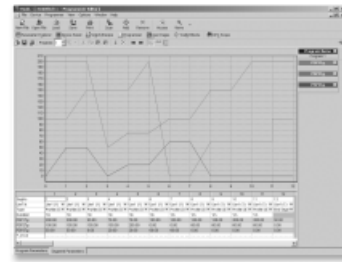
TEMPERATURE

- 50 Setpoint programs
- 8 Program event outputs
- Simple program editing



Standard screens provide the operator with an easy view of the programme running status including all those important features such as time remaining in segments and time remaining to end of programme.

The 3508/04 user interface offers the user an extremely easy method of editing, selecting and running programs and all programs can be given a meaningful name. Its programmer functions are very advanced and can be easily interfaced to remote instruments. A simple programme user value labelled carbon is used to set CP setpoint in each segment program editing can be achieved using a PC running the iTools Setpoint Program Editor.



iTools setpoint program editor

ZIRCONIA INPUT

- Compatible with most zirconia probes
- Carbon, dewpoint or oxygen
- Automatic probe cleaning
- Sooting alarm
- Probe impedance monitoring



The 3508/04 can interface directly to most commonly available zirconia probes including Barber Colman, Drayton, SSI, Marathon and Bosch Lambda.

The zirconia probe input can be configured to measure carbon potential, dewpoint or oxygen making the 3500 ideal for applications such as carburising furnaces and endothermic generators.

An automatic probe cleaning routine is available where either by a digital event or on a timed basis, an output is energised to perform a probe "burn off". While the burn off is in progress and during a timed recovery period the measured PV is frozen so that closed loop control can continue. Other control options during cleaning can be configured.

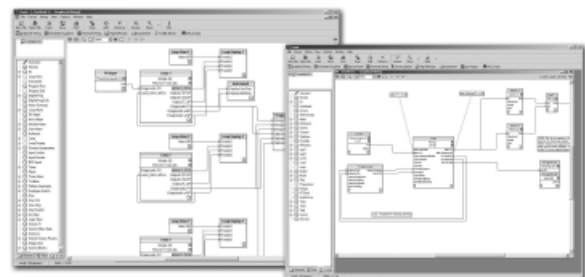
Diagnostic facilities are also included. A sooting alarm indicates that potentially soot is about to be deposited in the furnace. Continuous measurement of probe impedance and automatic monitoring of the probe recovery from cleaning ensures optimum furnace operation.

APPLICATION BLOCKS and GRAPHICAL WIRING EDITOR

- Mathematical calculations
- Combination logic
- Real Time Clock
- Timing Functions

Operators include; Add, Subtract, Log, Exp, SQRT, AND, OR, Max, Min, Select and many more

Application blocks allow the user to create custom solutions by internally wiring analogue and digital operations together in flexible ways. Up to 250 soft wired connections are available to produce intelligent control strategies. Other functions are available including timers, totalisers and a real time clock.



iTools graphical editor

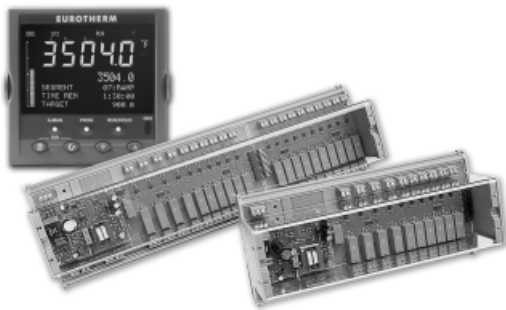
ATMOSPHERE FURNACE CONTROL SYSTEM

- Furnace temperature
- Carbon potential
- Quench temperature and timing
- Digital control functions

In combination with the I/O Expander the 3508/04 can be configured to provide a very powerful small control system for a heat treatment furnace.

Two versions of the I/O Expander are available one unit having 10 digital inputs and outputs and the second unit having 20 digital inputs and outputs.

In combination with the Graphical Wiring Editor this remote I/O can form part of the furnace strategy enabling links with other control items as well as furnace and quench system actuators and sensors.



3508CP

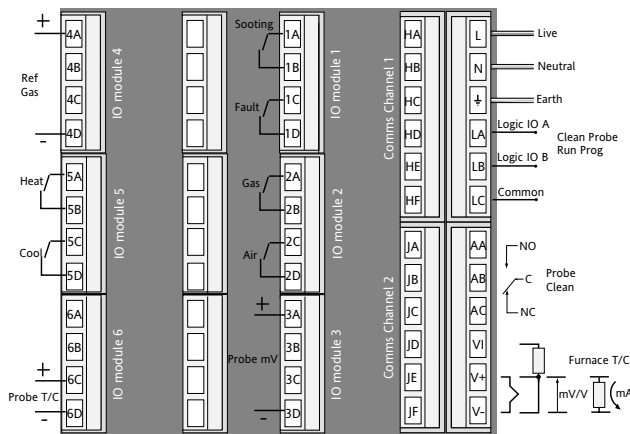
When combined atmosphere/temperature solutions are not required customers may wish to consider the 3508 for independent temperature or atmosphere control applications.

The 3508 retains all of the functionality of the 3504 and can be supplied into carbon - dewpoint and oxygen control and programming applications.

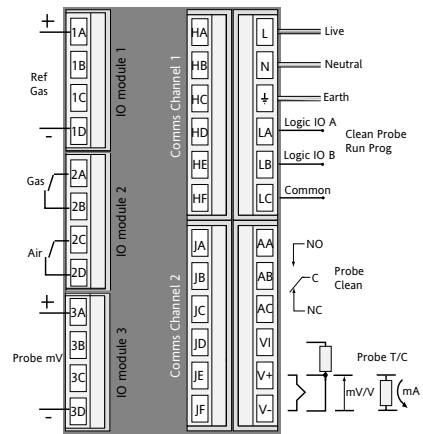


REAR TERMINAL CONNECTIONS

3504 Carbon/Temperature/Programmer



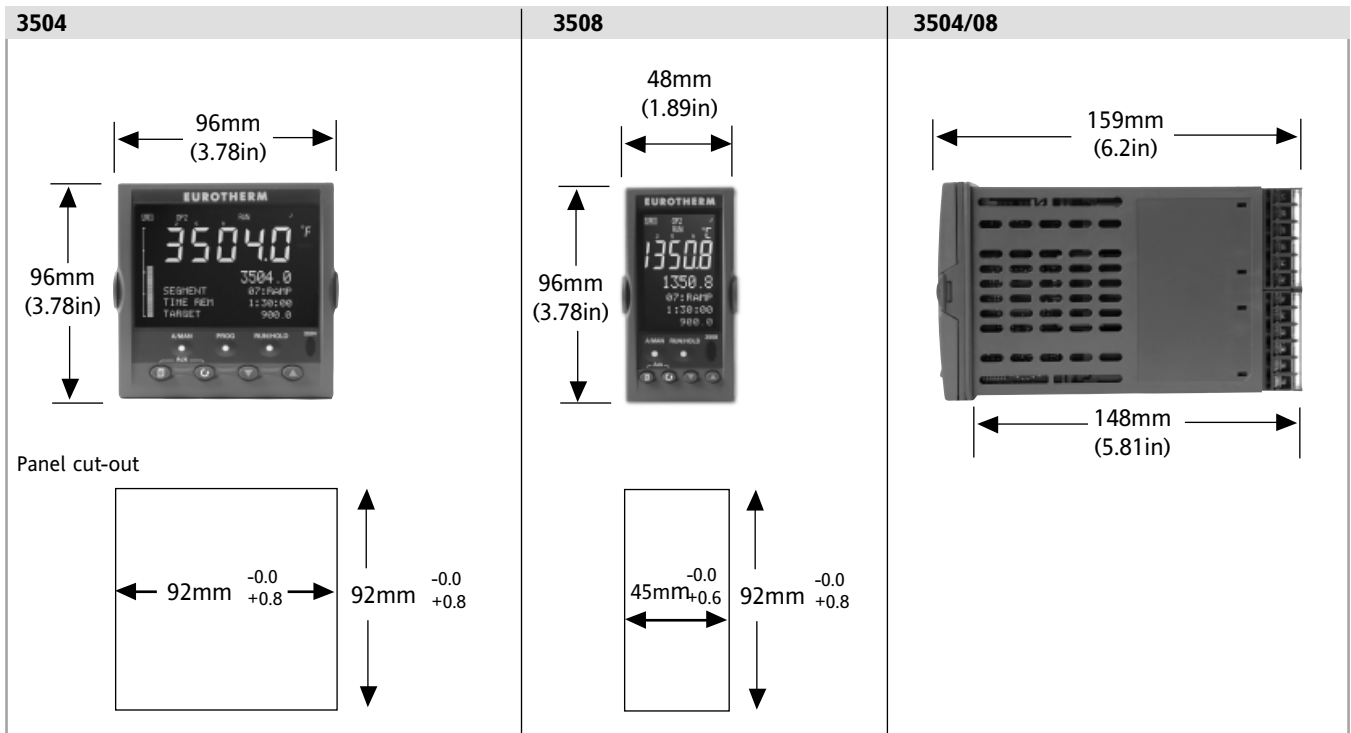
3508 Carbon/Control Programmer



2000IO Expansion Terminal Connections

		Prbcln			Prbsoot			PrbFlt			PrgEv1			PrgEv2			PrgEv3			PrgEv4			PrgEnd			PrgRun								
E1	E2	+	+	-	-	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C								
2704 Comms		24Vdc Out			21			22			23			24			25			26			27			28			29			30		
Supply AC/DC					24Vdc IP			24Vdc IP			24Vdc IP			24Vdc IP			24Vdc IP			24Vdc IP			24Vdc IP			24Vdc IP			24Vdc IP					
24	24	E				1+	1-		2+	2-		3+	3-		4+	4-		5+	5-		6+	6-		7+	7-		8+	8-		9+	9-		10+	10-
					PrgRun			PrgRst			PrgHld			Wait A			Wait B			Wait C			SegAdv			PrgAdv								

DIMENSIONAL DETAILS



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