

## 300°C Laboratory Ovens

The SNOL 300LFN series from AML Instruments are a range of precision electric laboratory ovens. They are designed for low temperature thermal treatment such as drying, heating and thermal testing in an air-flow assisted environment.

Forced air convection is used to provide more effective drying and quicker heating, as well as improved temperature uniformity throughout the stainless steel lined chamber. With a temperature range of 50 to 300°C, the precision temperature control system provides good stability and uniformity for high quality results.

A digital PID temperature controller, displaying the current temperature and set-point is fitted as standard, with the option of more advanced controllers with additional functionality also available.

An independent over-temperature protection device is fitted as standard that prevents the oven exceeding its maximum safe temperature. As well as offering peace of mind, this can help meet Health & Safety and Insurers' requirements, where the oven is left running unattended (e.g. overnight).

All models have a fan speed controller allowing some adjustment of volume of air being circulated. Speed is adjustable in 10 nominal steps or the fan can be turned off (only for use below 150°C). All models have a control knob to select internal or external air circulation (or a mixture as desired).

AML Instruments has these ovens manufactured with mineral insulated (MI) heating elements. Which are hermetically sealed, giving longer life and more resilience to certain thermal processes, such as those involving oils, abundant moisture, carbon, etc.

Subsequently the range has an increased warranty period of 2 years. Our sustainable design means all parts are accessible, serviceable and replaceable, should the need arise. We offer long-term product support, stocking a wide range of spares and accessories in the UK.

Our ovens are available with optional UKAS (ISO 17025) calibration of the temperature controller and sensor as a system, and we also offer multi-point thermal surveys of the chamber volume.

AML Instruments offers models customised to meet AMS 2750F (aerospace & automotive heat treatment specification), complete with UKAS (ISO 17025) calibration and thermal survey meeting NADCAP requirements. For customisation to this specification or others please contact us.



## Standard Stocked Models

Normally available from stock or on a short lead time. Options on the following pages normally take a few days longer. Please contact us for a quote with current lead-times.

Model <i>AML Stock Code</i>	Capacity (Litres)	Chamber Size* External Size (WxDxH)	Shelves / Positions	Power / Plug	Weight	Price
<b>SNOL 20/300 LFN</b> <i>FCESNOL20/300LFN</i>	20 L	240 x 280 x 340mm 490 x 700 x 680mm	2 / 5	1 kW UK 13A	36 Kg	<b>£1080</b>
<b>SNOL 60/300 LFN</b> <i>FCESNOL60/300LFN</i>	60 L	380 x 380 x 420mm 630 x 740 x 760mm	3 / 6	2 kW UK 13A	50 Kg	<b>£1,480</b>
<b>SNOL 120/300 LFN</b> <i>FCESNOL120/300LFN</i>	120 L	550 x 400 x 580mm 810 x 780 x 920mm	3 / 6	2 kW UK 13A	70 Kg	<b>£1,780</b>
<b>SNOL 220/300 LFN</b> <i>FCESNOL220/300LFN</i>	220 L	730 x 500 x 620mm 975 x 920 x 955mm	3 / 6	4 kW Blue 32A	102 Kg	<b>£2,880</b>

**Supply Voltage:** 230Vac 50Hz (single phase).

**Power Connector:** UK 13A = BS1363. Blue 32A = IEC60309.

## Standard Non-stocked Models

Normally available on a 3-6 week lead-time. This model has double doors, hinged at each side.

Model	Capacity (Litres)	Chamber Size* External Size (WxDxH)	Shelves / Positions	Power	Weight	Price
<b>SNOL 420/300 LFN</b>	420 L	1000 x 500 x 860mm 1300 x 1030 x 1300mm	3 / 6	6.2kW	178kg	<b>£3,880</b>

**Supply Voltage:** 400Vac 50Hz, 3P+N+E (Star with Neural)

**Connector:** IEC60309 Red 5-pin 16A

\* As a general rule, a gap of a minimum of 10% of each chamber dimension should be left unused on each side of the load to ensure good air flow.

WxDxH = Width (Left-right) x Depth (Front-back) x Height (Top-bottom).








		<b>SNOL 20/300</b>	<b>SNOL 60/300</b>	<b>SNOL 120/300</b>	<b>SNOL 220/300</b>	<b>SNOL 420/300</b>
<b>Heating Time</b> (Minutes. Approx.)	50°C	4	5	7	3	-
	100°C	8	11	14	7	-
	200°C	19	20	27	15	-
	300°C	34	34	45	30	36
<b>Air Changes Per Hour</b> (With fan at full speed and vent fully open. Approx.)	50°C	4	3	2	2	-
	100°C	9	8	3,5	4	-
	200°C	14	12	6	5	-
	300°C	21	16	9	6	-
<b>Energy Required to Maintain Temperature</b> (KW. Approx.)	50°C	0.10	0.12	0.17	0.30	-
	100°C	0.21	0.24	0.30	0.73	-
	200°C	0.32	0.47	0.64	1.20	-
	300°C	0.49	0.78	1.01	1.60	-
<b>Shelf Loading Weight Limit; Single Shelf / Oven Total</b> (Kg. Non-concentrated.)		10 / 20	10 / 30	15 / 40	15 / 50	15 / 50

Prices Exclude VAT and Delivery and are correct at the time of writing. Appearance may vary from images shown.  
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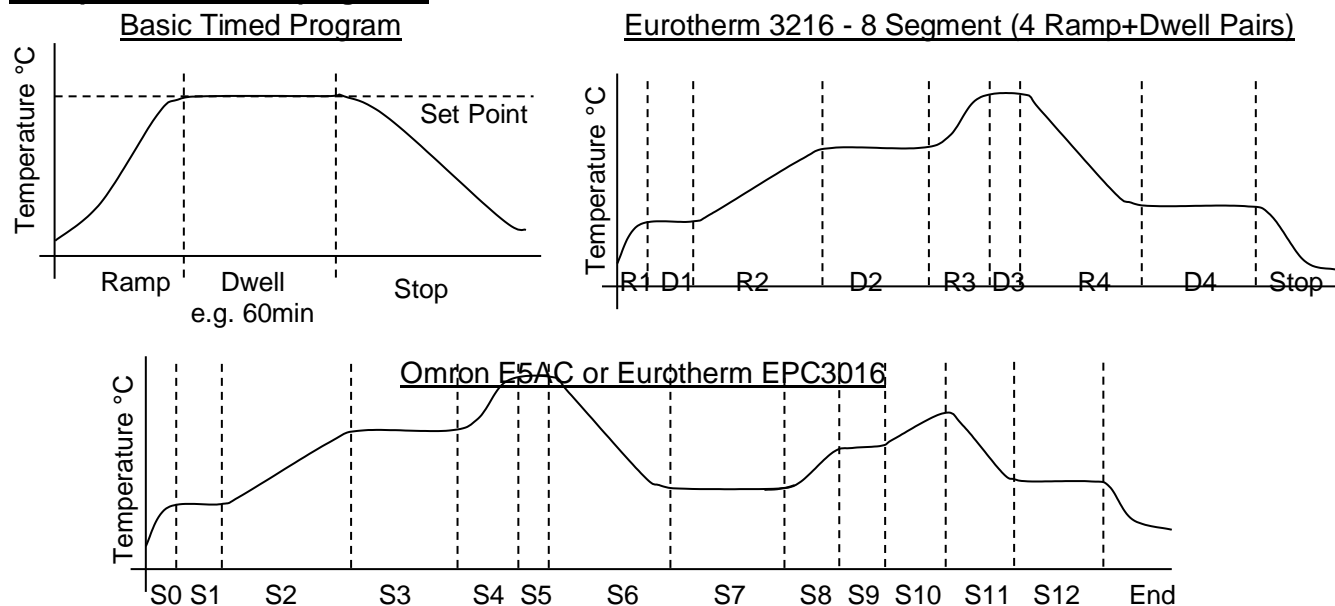
## Temperature Controller Options

As standard the ovens are fitted with an Omron E5CC temperature controller, but there is the option of other controllers that can be fitted instead at extra cost. All controllers offer display with 0.1°C resolution. All models feature Autotune which can be used to optimise the control terms for the load, but is not necessary for most applications. Omron models operate a buzzer that sounds briefly (4 seconds by default, user-defined) when the program finishes.

<p><b>Omron E5CC</b> Fitted as standard.</p>	<p><b>Omron E5AC-T Programmer, 8 Program</b> Optional at extra cost. <b>+£665</b></p> 	
<p>Run/Stop Modes. Settable Heating Ramp Rate. Basic Timed Program: Ramp, Dwell, Stop.</p>	<p>Large 1" high Reading Run/Stop Modes. Settable Heating Ramp Rate. 8 Timed Programs with 32 Segments each (Ramp, Dwell, Stop).</p>	
<p><b>Eurotherm 3216</b> Optional at extra cost. <b>+£275</b></p> 	<p><b>Eurotherm 3216 Programmer, 1 Program, 8 Segments</b> Optional at extra cost. <b>+£380</b></p> 	<p><b>Eurotherm EPC3016 Programmer, 10 Program, 24 Segments each, RJ45 Ethernet PC Network Port</b> Optional at extra cost. <b>+£735</b></p>  
<p>Run/Stop (Auto/Off) Modes. Settable Heating Ramp Rate Basic Timed Program: Ramp, Dwell, Stop.</p>	<p>Run/Stop (Auto/Off) Modes. Settable Heating Ramp Rate. 8 Segment Timed Program: 4 Ramp+Dwell pairs, Stop.</p>	<p>Run/Stop (Auto/Off) Modes. Settable Heating Ramp Rate. 10 Timed Programs with 24 Segments each (Ramp, Dwell, etc).</p> <p>Connection to a laptop or PC network via Ethernet RJ45 port on front panel. Includes PC software for easier creation, editing and backup of timed programs.</p>
	<p><b>Eurotherm 3216 Programmer, 5 Program, 8 Segments each</b> Optional at extra cost. <b>+£495</b></p>	

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### Examples of the timed programs:



Other instruments can be fitted to order, to give features such as timed programs with more segments, audible alarms, remote digital communications (RS-485 etc), data recording and PC software. Additional metal shelves are available. Whilst most models are normally available from stock, options normally take longer. Please contact us for a quote.

### Over-temperature Protection Options

The ovens are fitted with basic over-temperature protection as standard. A user adjustable option is also offered:

<b>Basic OTP</b> Included	An independent over-temperature protection device is fitted as standard that prevents the oven exceeding its maximum temperature.
<b>OTP 2</b> <b>+£287*</b> <small>*except with E5AC-T; contact us for a price</small>	A digital temperature limit controller mounted in the front panel. Displays its temperature reading and can be set by the user to protect their load from exceeding their desired temperature. If the oven temperature exceeds the temperature set on the over-temperature protection controller, the oven will be prevented from heating until the user resets the over-temperature protection controller, by pressing a button.

### 7 Day Timer **+£265\*** \*except with E5AC-T or OTP2; contact us for a price

A timer can be fitted to the turn on the controller at a specific time. The controller will then run at its last setting. Featuring: Daily and weekly program, Manual override, Fully automatic daylight saving time.

### Accessible Thermocouple Connections

We can fit accessible thermocouple connections (miniature plug and socket) to save time with regular calibrations. If one of the following is ordered as well as OTP2 option, then connections for the OTP2 will be also be provided.

Connections at the rear: **+£58**  
Connection in the front panel: **+£95**



### Cable Entry Ports

Option	Details	Price
19mm Survey Port (Rear)	Flange outside. In bottom right corner by default.	<b>+£265</b>
30mm Cable Entry Port (Rear)	Flange outside. In top left corner by default.	<b>+£310</b>
'50mm' Cable Entry Port (Rear)	Flange outside. In top left corner by default.	<b>+£335</b>
30mm Cable Entry Port (Side/Top)	Flanges outside & inside.	<b>+£425</b>
'50mm' Cable Entry Port (Side/Top)	Flanges outside & inside.	<b>+£450</b>

'50mm' sizes are nominal and in the range 47-51mm ID. Positions are as viewed from the front. Flanges protrude up to 30mm. Rear positions are limited, due to fan, vents, etc. Side positions are in the upper half of the chamber and may limit the shelf positions. Side positions can be on the left or right side, note that the door hinge is on the right. Further details are available on enquiry.

Suitable temperature rated material/bung is provided to block the Entry Port. Flanges and objects passing through the Entry Port may get hot and conduct heat outside the chamber. Excessive thermal loading or insufficient insulation in the entry port can have a negative on thermal uniformity in the chamber.



### Additional Shelves

Extra Standard Shelf for SNOL 20/300 LFN	£42	Normally available from stock.
Extra Standard Shelf for SNOL 60/300 LFN	£65	Normally available from stock.
Extra Standard Shelf for SNOL 120/300 LFN	£87	Normally available from stock.
Extra Standard Shelf for SNOL 220/300 LFN	£138	Non-stock, available 3-6 week lead-time.
Extra Standard Shelf for SNOL 420/300 LFN	£161	Non-stock, available 3-6 week lead-time.

### Calibration of SNOL Oven Systems

UKAS calibration of instrument(s) and thermocouple(s), as a system, at your choice of temperature(s) between 50 and 300°C. A calibration certificate is issued reporting the tested system's measurement at each temperature. Normally this calibration will be carried out in our laboratory prior to fitting into the oven. The typical lead-time is 4 - 10 working days. Fast turn-around may be available at additional cost.

<u>No. of Specified Temperature Points</u>	<u>Control System Only</u>	<u>Control &amp; OTP 2 Systems</u>
1	£130	£170
2	£170	£210
3	£205	£245
4	£235	£275
5	£260	£300

A 5-point or 9-point thermal survey of the chamber volume can also be performed before despatch, please contact with your requirements for a quotation. We also provide on-site calibration services and thermal surveys.

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### Other Options

The range is also available with stainless steel exterior (appearance may vary from unit pictured). A door with a glass window (260x200mm WxH) is another option. The lead time is typically 6 – 9 week and the price of the unit and some options are higher. Please contact us for a quote.

We may be able to assist with other bespoke requirements, please contact us with your requirements for further details.



*We manufacture enhanced versions of these ovens meeting AMS 2750F and Nadcap compliant, and thermally surveyed before leaving our factory. With thermal uniformity Furnace Class 2, or better, and Instrumentation Types up to 'A'.*

### Delivery & Shipping

These units are shipped as a palletised wooden crate, on a courier service which is normally next-day for much of the UK.

Destination	Price	Typical Transit Time
UK Mainland (England, Wales, Scottish Lowlands)	£85	1-2 days
UK Scottish Highlands & most UK costal islands	£120	1-3 days
UK Northern Ireland & Republic of Ireland	£120	1-3 days
Other destinations	Please contact us for a quote.	
Collection from our factory (Derbyshire, UK)	£0 (Weekdays, by arrangement.)	



These units are manufactured in the EU by SniTherm (Umega Group, AB) to AML Instruments Ltd's specification. Final manufacturing, testing, localisation, customisations, addition of options and after-sale service are performed in the UK by AML Instruments Ltd. AML was established in 1979 and has offered the SNOL range since 2008.



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## **After Sales Service & Warranty**

AML Instruments has been stocking and selling the SNOL range since 2008. We hold UK stock of a wide range of spares and accessories and can offer service and repairs at our factory if required at a later date. On-site service and basic repairs may be available subject to location and the nature of the repair. We also offer a range of on-site calibration services, see our website or contact us for more details.

Each unit has a 2 year return to base warranty against manufacturing defects from the date of purchase from AML Instruments. This covers normal use of the unit in accordance with its instruction manual. It does not cover excessive 'wear and tear' or rough handling. Failures or damage resulting from the process or its by-products (e.g. leaks, spills, blockages, contamination, corrosion, etc.) cannot be considered manufacturing defects and as such are not covered by the warranty.

On receipt of the unit it is important to check for any transport damage and report it to AML Instruments and note it on the carrier's paperwork. It is recommended to keep the original wooden packaging in case the unit ever needs returning.

Under the warranty any manufacturing defects will be rectified by AML Instruments as the agent of the manufacturer at no charge. 'Return to base' means the customer is responsible for return of the unit to AML Instruments's site (Derbyshire, UK) for assessment with a view to repairing under warranty. Or, if necessary, we can provide collection at a cost, provided the unit is suitably packaged. For any work performed that is solely covered by the warranty AML Instruments will provide return shipment of the unit within the UK and Republic of Ireland at no charge. Whilst AML Instruments stocks a range of spares and aims to resolve any warranty repairs quickly, typically within 3 – 8 working days, the warranty does not guarantee this nor any provision of a loan unit while the customer's unit is with us.

### *Part of a range of thermal solutions from AML Instruments*



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