PGC5000
Integrated controller
Measurement made easy
The PGC5000 integrated controller combines the core functionality of the PGC5000A master controller into either the PGC5000B or PGC5000C Smart Oven™

By removing the need for a traditional controller, we can:
• reduce analyzer costs
• free up valuable shelter space
• reduce analyzer shelter costs
### Purpose

The PGC5000 integrated controller provides all of the analyzer system control functions and coordinates internal and external data activities for the PGC5000B and PGC5000C Smart Ovens™. The PGC5000 integrated controller supports individual Smart Oven™ configurations to maximize application flexibility, while minimizing space and utility requirements.

### Description

The controller board has been redesigned to fit inside the oven electronics compartment, eliminating the need to a traditional controller enclosure. The integrated controller of the PGC5000 is designed with a real time embedded operating system (RTOS), to guarantee critical system uptime and security.

Ethernet communication interfaces include:
- OPC (via VistaGateway)
- MODBUS TCP
- STAR Compatible

On-board I/O:
- 8 Analog Output
- 2 Digital Output Relay

Optional Network Equipment (combination of 2):
- Moxa Serial to Ethernet Converter
- Sixnet Ethernet to Fiber Converter

### User interface options

Several user interface options are available, including:
- PC
- Tablet (via wireless access point)
- PGC5000A master controller remote access
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**Application flexibility**

The PGC5000 integrated controller supports maximum application flexibility, and is suitable for both airless and air bath ovens. It has the ability to control the PGC5000B Smart Oven™ targeting simple applications, while being able to scale up to the PGC5000C Smart Oven™, targeting the most complex applications.

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**B-Class Oven specifications**

**Physical**

Environmental
- Protected from weather: IP54 (NEMA 4 equivalent)

Temperature range
- 0 to 50°C (32 to 122°F)
- -20 to 50°C (-4 to 122°F) with enclosure purge

Humidity
- 95% relative humidity, non-condensing

Dimensions
- 596.9 mm W x 419.1 mm D x 609.6 mm H
- 23.5 in. W x 16.5 in. D x 24 in. H

Weight
- 60 kg (132 lb)
  - minimum, configuration dependent

Wall mounting
- 33 mm (1.3 in.) from wall with brackets

Floor mounting
- Optional dolly with casters

EMI/RFI
- Class A industrial environment

Electrical entries
- Left side and top

Pneumatic entries
- Right side

Sample entries
- Right side

Vents
- Right side

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**Safety area classification**

**CSA/NRTL**
- Class 1, Division 1; Groups B, C, D with Y-purge
- Class 1, Division 2; Groups B, C, D
- T Rating T4 – T2

**ATEX/IEC/CN/KO**
- Zone 1: CE 0344; II2G, Ex de py IIIB+H2 T4 – T2
- Zone 2: CE; II3G Ex de nA IIIB+H2 T4 – T2
- Ex de px IIIB+H2 T4 – T2 (optional)
- With X-purge power interlock

Purge wait time
- 18 minutes (Class 1, Division 1 / Zone 1 area)

**Power (hot, neutral, ground)**

Voltage
- 100-240 VAC

Frequency
- 50-60 Hz

Consumption: air
- 1200 W startup, 900 W steady-state (Typical)

Consumption: airless
- 500 W startup, 200 W steady-state (Typical)

**Instrument air**

Supply connection
- 3/8 inch tube, minimum

Supply pressure: air bath
- 551.6 kPa (80 psig)

Supply pressure: airless oven
- 414 kPa (60 psig)

Quality
- Clean, oil free and -34°C dew point (-30°F)

Flow rates: air bath
- 127-147 L/min at 20°C, steady-state, Y-purge types

Flow rates: airless oven
- 39.4 L/min
Analytical detectors

Standard detectors
- Single and multiport thermal conductivity (TCD)
- Flame ionization detector (FID)
- Thermal conductivity intercolumn detectors (optional)

Third party detectors
Consult factory

Isothermal analytical oven

Oven liner
Stainless steel

Internal dimensions
- 327.7 mm W x 391.2 mm H x 287 mm D
- 12.9 in. W x 15.4 in. H x 11.3 in. D

Number of valves
- Standard provisions for 3 gas sample or column switching valves
- Standard provisions for 1 external liquid sample valve
Consult factory for special requirements

Columns
- 1/16, 1/8, 3/16 inch, packed SSTL, metal or fused silica capillary

Heat: Air Bath
Forced Air

Heat: Airless Oven
Recirculated Air

Temperature control method
Closed loop PID

Oven temperature
- Ambient +30°C to 180°C (settings and display in °C only)

Setpoint resolution
1°C

Temperature stability
±0.1°C ambient
±1°C over operating temperature range

Gas control (EPC)

Electronic control method
Closed loop PID, temperature stabilized

Number of EPC zones
5 maximum

Filtration
- 2 µm at inlet, provided

Inlet pressure: Minimum
Setpoint + 69kPa (10 psig)

Inlet pressure: Maximum
1034 kPa (150 psig)

Range
0-100 psig, bubble tight, non-venting

Readout resolution
0.001 psig

Setpoint resolution
0.001 psig

Accuracy: 0-100 psig
2%

Repeatability
± 0.05 psig

Allowable gases
- H2, He, N2, Air, Ar (No liquids, corrosives, combustibles, O2)

Quality
GC grade

Tube fittings
- 1/16, 1/8, 1/4 inch connections
- 316 SS Gyrolok (standard)
- 316 SS Swagelok (optional)
## C-Class oven specifications

### Physical

**Environmental**
- Protected from weather: IP54 (NEMA 4 equivalent)

**Temperature range**
- 0 to 50°C (32 to 122°F)
- -20 to 50°C (-4 to 122°F) with enclosure purge

**Humidity**
- 95% relative humidity, non-condensing

**Dimensions**
- 596.9 mm W x 419.1 mm D x 914.4 mm H
- 23.5 in. W x 16.5 in. D x 36 in. H

**Weight**
- 75 kg (150 lb)
- Minimum, configuration dependent

**Wall mounting**
- 33 mm (1.3 in.) from wall with brackets

**Floor mounting**
- Optional dolly with casters

**EMI/RFI**
- Class A industrial environment

**Electrical entries**
- Left side and top

**Pneumatic entries**
- Right side

**Sample entries**
- Right side

**Vents**
- Right side

### Safety area classification

**CSA/NRTL**
- Class 1, Division 1; Groups B, C, D with Y-purge
- Class 1, Division 2; Groups B, C, D
- T Rating T4 – T2

**ATEX/IEC/CN/KO**
- Zone 1: CE 0344, Ii2G, Ex de py IIb+H2 T4 – T2
- Zone 2: CE, Ii3G Ex de nA IIb+H2 T4 – T2
- Ex de px IIb+H2 T4 – T2 (optional)
- With X-purge power interlock

**Purge wait time**
- 18 minutes (Class 1, Division 1 / Zone 1 area)

### Power (hot, neutral, ground)

**Voltage**
- 100-240 VAC

**Frequency**
- 50-60 Hz

**Consumption: air**
- 1600 W startup, 900 W steady-state (Typical)

**Consumption: airless**
- 500 W startup, 200 W steady-state (Typical)

### Instrument air

**Supply connection**
- 3/8 inch tube, minimum

**Supply pressure: air bath**
- 551.6 kPa (80 psig)

**Supply pressure: airless oven**
- 414 kPa (60 psig)

**Quality**
- Clean, oil free and -34°C dew point (-30°F)

**Flow Rates: air bath**
- 127-147 L/min at 20°C, steady-state, Y-purge types

**Flow Rates: airless oven**
- 39.4 L/min

### Analytical detectors

**Standard detectors**
- Single and multiport thermal conductivity (TCD)
- Flame ionization detector (FID)
- Flame photometric detector (FPD)
- Thermal conductivity intercolumn detectors (optional)

**Third party detectors**
- Consult factory
Isothermal analytical oven

Oven liner
Stainless steel

Internal dimensions
327.7 mm W x 607 mm H x 287 mm D
12.9 in. W x 23.9 in. H x 11.3 in. D

Number of valves
Standard provisions for 6 gas sample or column switching valves
Standard provisions for 2 external liquid sample valve
Consult factory for special requirements

Columns
1/16, 1/8, 3/16 inch, packed SSTL, metal or fused silica capillary

Heat: air bath
Forced air

Heat: airless oven
Recirculated air

Temperature control method
Closed loop PID

Oven temperature
Ambient +30°C to 180°C (settings and display in °C only)

Setpoint resolution
1°C

Temperature stability
±0.1°C ambient
±1°C over operating temperature range

Gas control (EPC)

Electronic control method
Closed loop PID, temperature stabilized

Number of EPC zones
10 maximum

Filtration
2 µm at inlet, provided

Inlet pressure: minimum
Setpoint + 69 kPa (10 psig)

Inlet pressure: maximum
1034 kPa (150 psig)

Range
0-100 psig, bubble tight, non-venting

Readout resolution
0.001 psig

Setpoint resolution
0.001 psig

Accuracy: 0-100 psig
2%

Repeatability
± 0.05 psig

Allowable gases
H2, He, N2, Air, Ar (No liquids, corrosives, combustibles, O2)

Quality
GC grade

Tube fittings
1/16, 1/8, 1/4 inch connections
316 SS Gyrolok (standard)
316 SS Swagelok (optional)

Integrated controller oven compatibility matrix

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<th>RUI</th>
<th>Detector options</th>
<th>Series</th>
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<td></td>
<td></td>
<td>PGC5007</td>
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<tr>
<td>PGC5000 IC</td>
<td></td>
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<tr>
<td>B Oven</td>
<td>–</td>
<td>✓</td>
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<tr>
<td>C Oven</td>
<td>–</td>
<td>✓</td>
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