ABB MEASUREMENT & ANALYTICS | DATA SHEET

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

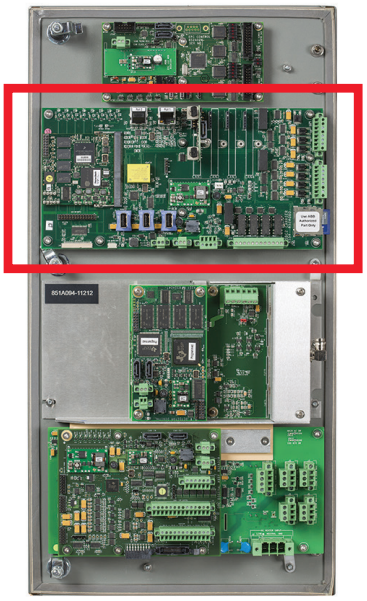
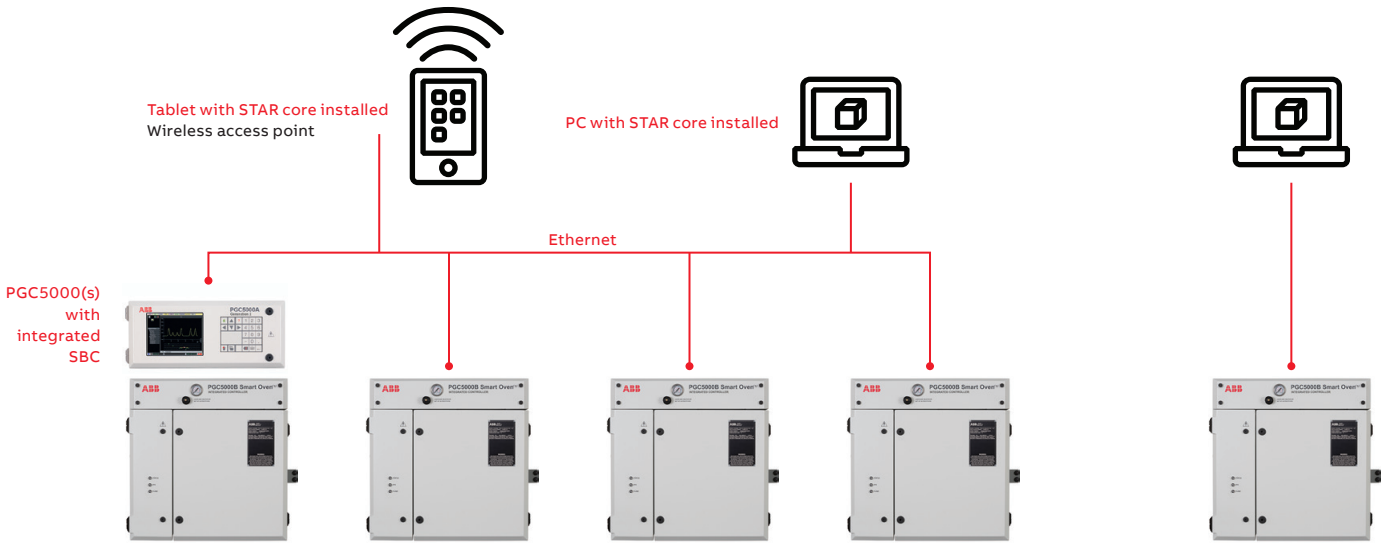


Fig. 1 PGC500B Smart Oven™ board

User interface options

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



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.

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

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
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

Sales Service Software

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 + 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)

Integrated controller oven compatibility matrix

	RUI		Detector options			Series			
PGC5000 IC	**SBC Gen 1**	**SBC Gen 2**	**TCD**	**FID**	**FPD**	**Airless**	**PGC5007**	**PGC5009**	**PGC5000TP**
B Oven	–	✓	✓	✓	–	✓	–	–	✓
C Oven	–	✓	✓	✓	✓	✓	–	–	✓

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