

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

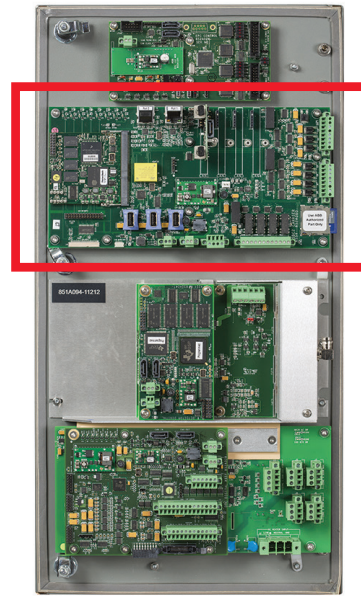
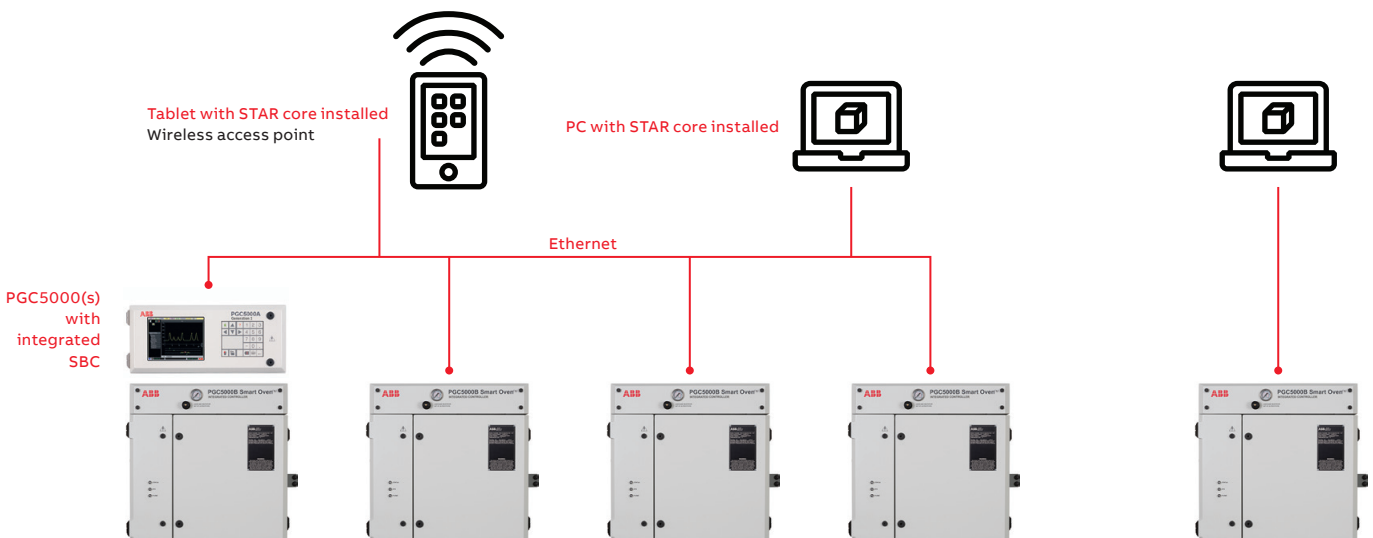


Fig. 1 PGC500B Smart Oven™ board

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

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

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