

 **CompuDAS**

## SG6 Monitor and Control System



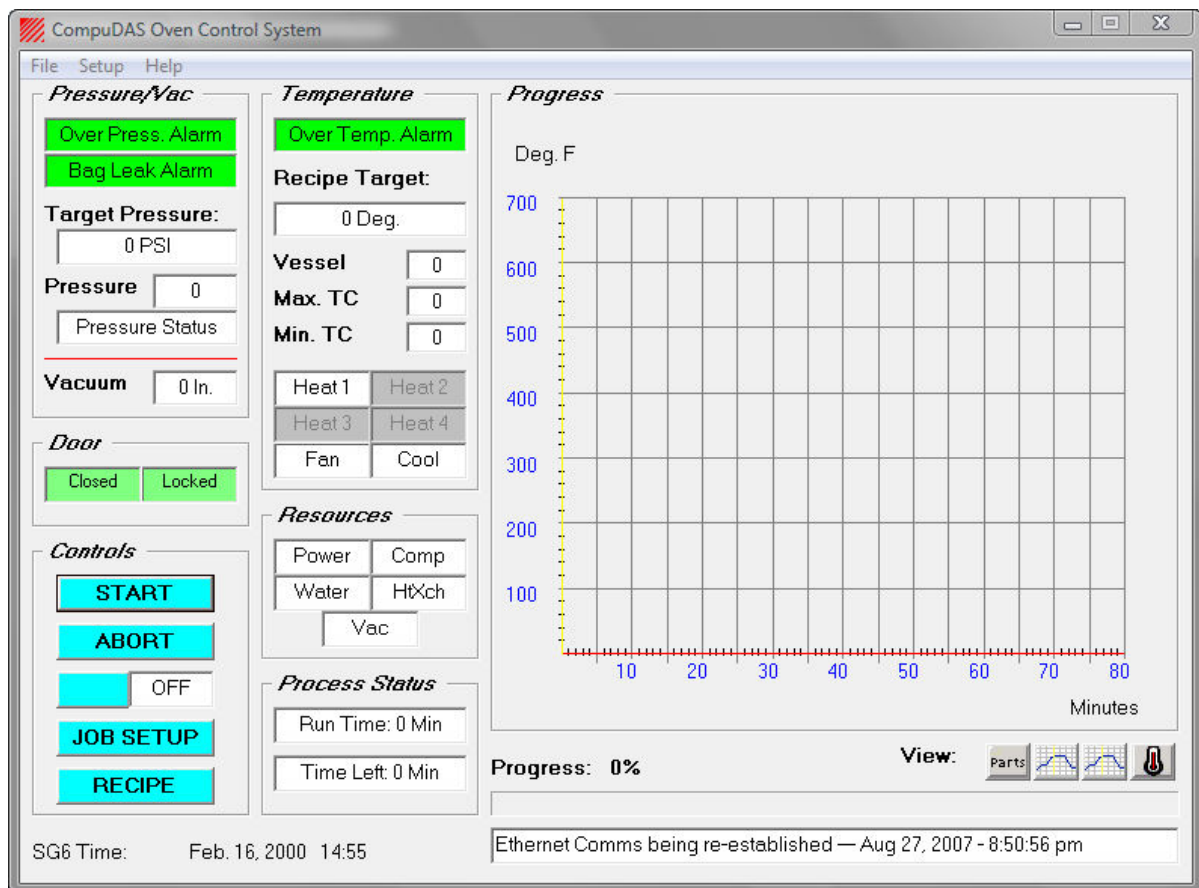
## Overview

The CompuDAS Model SG6 is a multi-channel programmable full-featured data acquisition and control system. The system is designed to monitor, document and control the following types of processes;

- ovens
- Autoclaves
- Presses
- RTM.

## Process Monitoring

Features: The SG6 provides PC screen display of the current measurement of any selected channel and control of logging.



- (16) individual channels, expandable in groups of 16 channels up to 512 channels. Each channel can be configured for measuring thermocouples, RTD's, voltages or currents.
- Support for (8) thermocouple types.
- Built-in cold junction compensation for thermocouple measurements.
- Supported voltage ranges are +/- 10 volts, +/- 1 volt, +/- 100 mV, and +/- 10 mV full scale.
- Real-time graphing to the Windows setup screen provides a view of the most recent readings.
- Excel compatible 'CSV' files are created so that the specific graphing / reporting needs of the user are easily accommodated.
- If a printed copy of a logging session is desired, the user may either print what is being viewed on the real-time screen or print using the numerous reporting capabilities available in Microsoft Excel.

The screenshot displays a software window titled "Receiving Job Configuration". At the top, there is a grid of 24 tabs labeled "Part 1" through "Part 24". The "Part 1" tab is currently selected. Below the tabs, the configuration for Part 1 is shown. It includes a "Part Identification" section with "Part No:" and "Ser. No:" input fields, an "Image Select" button, and a small image of a chocolate chip cookie. To the right is a "Part Flags" section with three checkboxes: "Part 1 Active" (unchecked), "Venting Required" (unchecked), and "Temp. Control Req'd" (checked). Below these are three columns of input fields: "Thermocouples" (6 "TC #" fields), "Ports" (5 "Port #" fields), and "Vacuum Sensors" (5 "PT #" fields). At the bottom of the window, there are four buttons: "Print", "Clear All", "Save", and "Exit". The "Receiving Job Configuration" title is highlighted in a red box.

- The setup of each channel is performed using the main Windows based user interface.
- Each channel's parameters for input scale, process type (voltage, thermocouple, etc.), Engineering Units scaling and correction, and data sampling rate are established using the simple Windows based user interface software.
- The conversion of voltages or currents to human understandable units is built into the setup for the SG6 system. An example of this is the conversion of the voltage being produced by a pressure transducer to PSI.

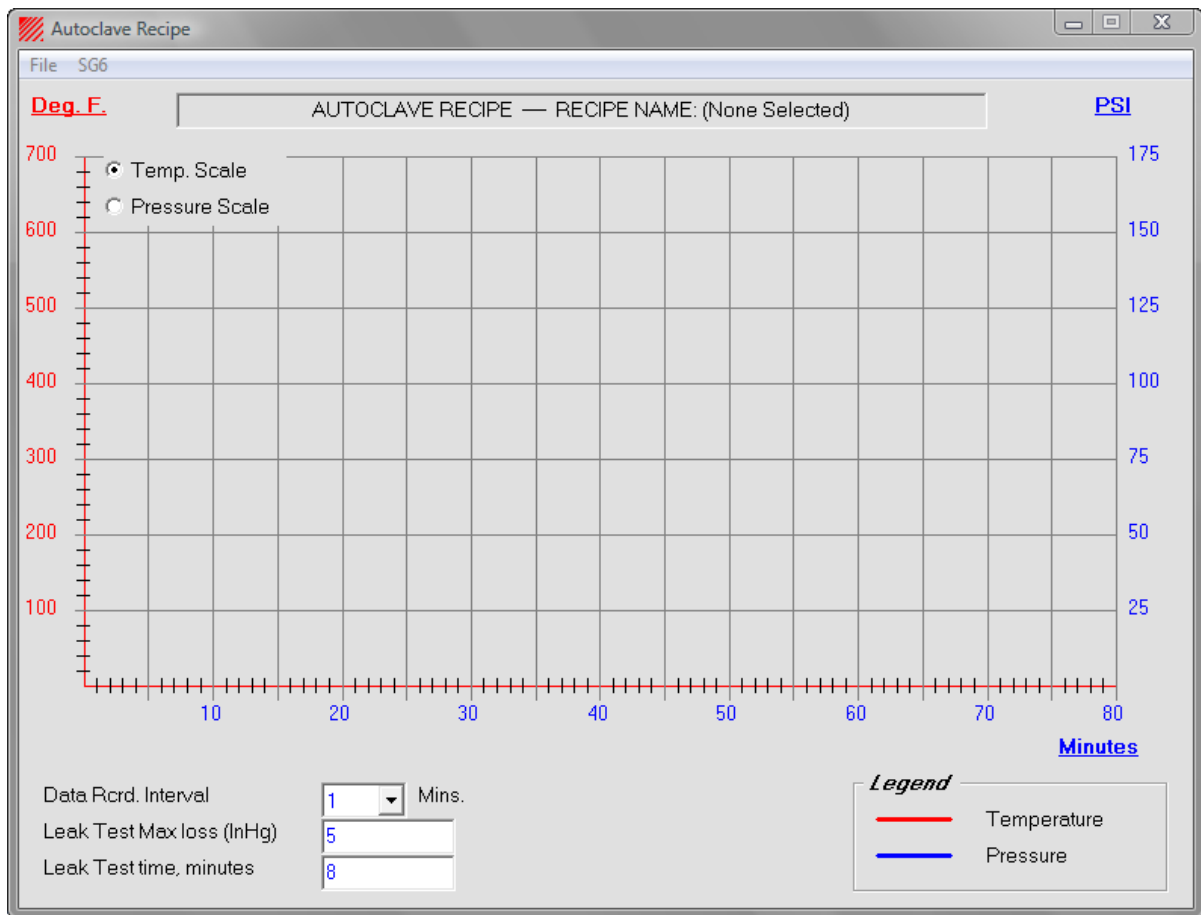
*Remote and Addressable*

The SG6 system comes with its own power supply requiring only a connection to surge protected facility power (120 / 240 volts AC).

Communications to each group of (16) channels is by means of RS485. This allows each set of (16) cards to be up to 5000 feet from one another.

Communications to one or more SG6 system is by means of ethernet. This allows each system and the user's PC to be up to 300 feet from the communications hub.

Each group of (16) channels is uniquely addressable to allow almost unlimited expansion in channel count.



### *Solid State Hard Drive*

Each SG6 system comes with a built-in solid state 32Mb hard drive. The solid state hard drive allows process monitoring to occur even when the operator PC is 'off line' for any reason. All process readings are stored first on the solid-state hard drive, then to the operator PC.

### *Ethernet and RS232/485 Interface*

Each group of (16) channels is configured for either RS232 or RS485 communications. This allows each set of channels to be physically isolated from one another – up to 5000 feet from the SG6 control processor.

Each SG6 control processor installed in the network is connected to the operator PC by means of an Ethernet connection. This provides for very cost effective wiring, and allows the SG6 control processors to be up to 300 feet from the network switch or hub.

Ethernet also accommodates very rapid transfer of data from each SG6 control processor to the operator PC.

Ethernet also allows the use of multiple PC's. If desirable, more than one PC may be 'connected' and viewing process data simultaneously.

### *Highly Expandable*

Each SG6 control processor supports up to (16) 16-channel cards

The system can accommodate almost unlimited numbers of SG6 control processors.

### *Expansion for Control functions*

The SG6 system architecture provides a 32 channel digital I/O and an 8 channel analog output card for analog and digital I/O functions.

**The baseline system includes:**

- (1) 16 channel input card for process monitoring
- (1) SG6 control processor with the built-in solid state disk
- (1) Power supply
- (1) equipment panel
- (1) ethernet switch
- (2) CAT5 ethernet cables

Set-up screens provide for the setting of gain, input type, text legend, and engineering unit conversion on a per channel basis. They also provide access to the “Recipe”, the user programmable parameters for controlling your oven, autoclave or press.

The internal DB-9 connector provides access to the SG6 calibration and utility programs.

**System Overview:****Hardware**

The system uses a Single Board Computer (SBC) for On-Board storage of the operating system, program files, calibration files and message logs. It has a Real-time clock and provisions for RS485 and Ethernet communications.

The system can be configured with one or more input cards, the ANAI-16, having 16 analog input channels per card that can be configured for thermocouples, RTD's or pressure/vacuum transducers. The input ranges are 10V, 1V, 100mV, 10mV, Measurement resolution is 24 bit. It also has cold junction compensation for thermocouples. Communications with SBC is via 4-wire RS485 which allows for multiple card support.

Wiring – (2) pair cable, up to 4,000 feet total cabling length

The PB32/8432C provides up to 16 plug-in solid state ‘Quad’ relays in a choice of input or output modules, AC or DC and can be used for alarm outputs, switch/relay control, switch monitoring, etc. Typical use is Heat on/off relay control, Cooling on/off relay control, Purge Cycle completion monitor,

Configurations can include Multiple Single Board Computers (SBC), one PC, multiple ANAI-16 cards per SBC, scalable to 512 channels – distributed or centralized, desktop packaging option.

## Software

*CDACS.EXE* is the SBC resident data acquisition software. It controls data sampling which has user definable intervals from 10 seconds to 60 minutes. Data files are created and maintained on the SBC. Engineering units correction and input scale selection is on a channel-by-channel basis. Services requests from the PC user interface is via Ethernet connection. Batch mode logging or Continuous (Daily) mode logging is available and is user selectable. Alarm triggering controls are available on any channel based on any threshold criteria.

*CDClave.exe* is the Windows based PC user interface. It provides real-time graphing of process inputs, tabular view of process inputs, system setup establishment, system configuration archival and retrieval and data download file creation in CSV format (Excel compatible)

*ACSGraph.exe* is the post processing graphing utility. It is used to create and print graphs of any saved data download file.

For more information, please call us at 360-427-1418.

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