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SOFTWARE HISTORY

PACE5000

Pneumatic pressure controller

**Programmable Automated
Calibration Equipment**



PACE5000 current release Rev C20 software component versions

Description	DK Number	Version
Instrument main code	DK0367	V03.01.11
Instrument OS Build	DK0366	V01.10.01
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V03.01.00
Module Boot ROM (programmable at manufacture time only, See below)	DK0363	V02.00.00

CHANGES

DK0367

Fixed Ethernet "Out of memory exception" error display that occurred after many open/close cycles, once this error occurs the PACE lock up is unrecoverable by power cycling.

Fix Supervisor Protective Vent when p.u. trapped pressure setting disabled the o/p valve did not open.

Fix to Test Program not recognising Settling No Overshoot

Fix if control sensor range text matches +ve or -ve source range, the SENS:PRES:RANG command now always selects control sensor.

Fixed crash problem with missing string in FRENCH language within test program task.

Fixed issue in /s or /m units in test program, Slew Rate units /s/m displayed.

Fix added max files check in Test program to prevent the creation of too many files.

Fix added max files check in USER SETUP to prevent the creation of too many files.

Added Vent rate /s/m.

Added new product support page in the Status menu, provides web link saveable to USB memory.

Enhanced main display Status Area to show Actual Rate when in Max Rate mode.

Merged latest language files.

COMPATIBILITY and APPLICABILITY OF THIS RELEASE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000.

SOFTWARE UPGRADE PROCEDURE

Refer below.

RELEASE DATE

15th March 2018



PACE5000 Current release Rev B(19) software component versions

Description	DK Number	Version
Instrument main code	DK0367	V03.00.06
Instrument OS Build	DK0366	V01.10.01
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V03.01.00
Module Boot ROM (programmable at manufacture time only, See below)	DK0363	V02.00.00

CHANGES

DK0367

PACE5000 now compatible with CM3 control modules.

Added Communications Support page that includes links to PACE Lab view drivers, the link can be saved to USB memory device.

Added reference sensor diagnostic, sensor status pages and aligned sensor diagnostic pages to PACE6000 format, added FS and units to Module Status page.

Added NOT IN LIMITS to VFC option.

Test program functionality enhanced by addition of If statements (to allow if then goto functionality that can be nested), two independent cycle counters, ability to pre-set each cycle counter and control over individual VFC relays.

Added indication of software component compatibility to software status, refer to the compatibility and applicability section below.

Added calibration adjust and check menus, increased resolution on these pages to 8 digits, displayed reading filtering for calibration & calibration check screens, display of SD in calibration check and adjust screens, barometric and reference sensors now 2-point calibration, calibration adjust screens now display typed in pressure prior to accept screen and reference sensor calibration history menu to status page.

Added new SCPI commands/queries to retrieve sensor pressure readings:

:SENS:PRES:CONT? Control sensor
:SENS:PRES:PSE? Pseudo abs sensor
:SENS:PRES:REF? Reference sensor

Fixed Ethernet sub net mask to allow edit/save and added 2nd Close() command to TCP socket control.

Fixed string length (defaults to 8) issue in DPI520 RS232 emulation menu, to maintain compatibility with inherited DPI520 issue (white spaces prefixing the data) the string length can be set to 7.

Fixed dwell timer over-run issue within test program.

Fixed bug in leak / switch / burst test pages - previously 'long' units were not displayed.

Fixed bug in barometer resolution display.

Aligned display refresh update of barometer and reference readings to other readings (500ms).

DK0364

Change to calibration calculations to allow reference sensor to achieve a greater range of pressures at the lower end <0.5% FS.

COMPATIBILITY and APPLICABILITY OF THIS RELEASE

A software DK component version marked "(beta)" indicates a beta version of software is installed that is newer than the current official software version, refer to the section named "Software releases named "beta"" at the bottom of this document. Except DK0363 that is only programmed once at manufacture time, a DK component version marked "●" indicates the version of software installed that is older than the



current official software version so should be upgraded to the current version to maintain compatibility and correct operation.

Correct operation of the PACE5000 is supported only when DK component versions installed into the product agree with the above table, except DK0363.

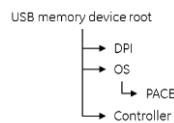
The issue of firmware should be used in production on the following series of instrument variants: PACE 5000.

SOFTWARE UPGRADE PROCEDURE

Download the PACE Software and save to a USB memory device.

<https://www.gemeasurement.com/test-calibration/controllers/pace-pneumatic-modular-pressure-controller#downloads-table-section>

Open the downloaded zip file and unzip to the root of the USB memory device. Once unzipped the USB memory device folder structure should be as below:



First upgrade module 1 and then module 2 if fitted. Secondly, update the OS (Operating system) and then lastly update Instrument software.

RELEASE DATE

15th May 2017



PACE5000 Current release Rev A(18) software component versions

First release via SAP, software release version changes numeric to Alpha from this point onwards, with old numeric release shown in brackets.

Description	DK Number	Version
Instrument main code	DK0367	V02.02.14
Instrument OS Build	DK0366	V01.10.01
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V02.05.02
Module Boot ROM	DK0363	V02.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table, except DK0363 that is only programmable at manufacture time.

CHANGES

DK0364

Allows for RPT or TERPS reference sensor operation with barometer.

Reference sensor not yet part of control outer loop.

Fix bias run problem for sensors with negative ADC counts.

DK0366

OS unused Ethernet ports blocked using firewall as result of cyber security nmap scan.

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

Correct operation of the PACE5000 is supported only when DK component versions installed into the product agree with the above table.

SOFTWARE UPGRADE PROCEDURE

First upgrade module 1 and then module 2 if fitted. Secondly, update the OS (Operating system) and then lastly update Instrument software.

RELEASE DATE

30th July 2015



PACE5000 RELEASE 17 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.02.14
Instrument OS Build	DK0366	V01.09.00
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V02.04.00
Module Boot ROM	DK0363	V02.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0364

Gain resolution used for RPT, TERPS & PRT sensors pressure calculation increased.

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

Correct operation of the PACE5000 is supported only when DK component versions installed into the product agree with the above table.

RELEASE DATE

23rd March 2015



PACE5000 SR0082 RELEASE 16 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.02.14
Instrument OS Build	DK0366	V01.09.00
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V02.03.10
Module Boot ROM	DK0363	V02.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0363

Code made compatible with 512Mbit NAND flash devices

RELEASE DATE

18th Sept 2013



PACE5000 SR0082 RELEASE 15 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.02.14
Instrument OS Build	DK0366	V01.09.00
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V02.03.10
Module Boot ROM	DK0363	V01.01.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0367

New Languages added

New hex keypad for MAC address entry

Pressure updates at 16 per sec

RELEASE DATE

11th June 2013



PACE5000 SR0082 RELEASE 14 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.01.43
Instrument OS Build	DK0366	V01.09.00
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V02.03.10
Module Boot ROM	DK0363	V01.01.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0364

Correct bias run start failure bug

Correct RPT diode read error bug

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

Software versions as detailed in 1 – Release Component Versions should be fitted to enable all features..

RELEASE DATE

27th June 2012



PACE5000 SR0082 RELEASE 13 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.01.43
Instrument OS Build	DK0366	V01.09.00
Instrument Boot ROM	DK0365	V01.03.01
Module Main Code	DK0364	V02.02.13
Module Boot ROM	DK0363	V01.01.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0365

Change to flash memory block unlock command because of Numonyx flash memory fault.
Disable boot diagnostic output on RS232 interface to prevent problems with connected equipment

DK0366

Change to flash memory block/unlock command for Numonyx flash memory fault

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

Software versions as detailed in Release Component Versions should be fitted to enable all features.

RELEASE DATE

13rd February 2012



PACE5000 SR0082 RELEASE 12 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.01.43
Instrument OS Build	DK0366	V01.08.01
Instrument Boot ROM	DK0365	V01.02.00
Module Main Code	DK0364	V02.02.13
Module Boot ROM	DK0363	V01.01.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0367

Fix memory leak problem.

Added save/recall user setup files and history files to and from USB

Support for CM0 and CM1

Ethernet option as standard

DK0364

New CAN commands to support new UI features

Eliminate delay in opening isolation and vent valves

25 mbar noise problem, Valve frequency tune now precedes the bias run

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

Software versions as detailed in 1 – Release Component Versions should be fitted to enable all features.

RELEASE DATE

5th August 2011



PACE5000 SR0082 RELEASE 11 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.00.07
Instrument OS Build	DK0366	V01.08.01
Instrument Boot ROM	DK0365	V01.02.00
Module Main Code	DK0364	V02.01.20
Module Boot ROM	DK0363	V01.01.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0365

Fix to flash memory drivers to accommodate new Numonyx 65nm device

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

9th March 2011



PACE5000 SR0082 RELEASE 10 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.00.07
Instrument OS Build	DK0366	V01.08.01
Instrument Boot ROM	DK0365	V01.01.05
Module Main Code	DK0364	V02.01.20
Module Boot ROM	DK0363	V01.01.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0366 (V1.07.00)

Fix to flash memory drivers to accommodate new Numonyx 65nm device

DK0366 (V1.08.01)

Pre-calibrate touch screen

Allow application to change MAC address

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

25th Feb 2011



PACE5000 SR0082 RELEASE 9 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.00.07
Instrument OS Build	DK0366	V01.06.19
Instrument Boot ROM	DK0365	V01.01.05
Module Main Code	DK0364	V02.01.20
Module Boot ROM	DK0363	V01.01.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0363

Compatibility with new revision of microprocessor

DK0364

Aeronautical functionality introduced for PACE6000 only.

Always set setpoint to zero gauge on executing a vent.

Burst test falsely triggered due to high demand, added additional condition to check the pressure being less than half the highest recorded pressure (current burst pressure).

Rate mode and slew rate are restored after vent is aborted.

Zero valve is closed before entering control mode.

Fixed issue with Source and vacuum sensors pressure calculation.

Fixed auto zero not returning control mode.

Ensure correct setpoint is displayed after timed zero in measure mode with more than 3 bar gauge trapped pressure.

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

10th Feb 2011



PACE5000 SR0082 RELEASE 8 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V02.00.07
Instrument OS Build	DK0366	V01.06.19
Instrument Boot ROM	DK0365	V01.01.05
Module Main Code	DK0364	V02.00.44
Module Boot ROM	DK0363	V01.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

DK0367

Burst test task added

Support for VFC (volt free contact)

New 'background thread' for XML file writes to improve communications speed

Hardware option log added

USB comms support added

Home key for menus added

Menus structure improved

Backlight timeout handled by OS

DK0366

O/S now controls backlight

Sharp LCD driver added

CAN buffering FPGA functionality added

Cosmetic display of MAC address improved

DK0365

LCD AutoDetect added

DK0364

Head correction now done in controller

Improved controller performance

Burst test functionality added

Fix auto addressing problem if nodes have same address

DK0376

CAN buffering implemented in FPGA

COMPATIBILITY

This release and releases going forward require newer PACE5000 chassis circuit board GE part IA4349.



RELEASE DATE

1st April 2010



PACE5000 SR0082 RELEASE 7 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V01.05.22
Instrument OS Build	DK0366	V01.04.00
Instrument Boot ROM	DK0365	V01.00.00
Module Main Code	DK0364	V01.04.20
Module Boot ROM	DK0363	V01.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

- Japanese units now have User Defined Units
- Now only operates with CM1 controller modules
- Added Maximum Working Pressure Alarm
- Added Imperial Units to head correction Parameters
- Text changes to UI, display matches PACE6000
- Removed instrument accuracy option
- Isolation valve opened at power up, even if 'No Vent' is selected
- Stop controller oscillating into large volumes
- Fix measurement error when barometer connected
- Fix calibration date lockup problem

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

8th Sept 2009



PACE5000 SR0082 RELEASE 6 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V01.04.46
Instrument OS Build	DK0366	V01.04.00
Instrument Boot ROM	DK0365	V01.00.00
Module Main Code	DK0364	V01.03.39
Module Boot ROM	DK0363	V01.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

Add Pseudo Absolute range.

Add SCPI communications protocol.

Add backup copy of setup file so that file is not corrupted during power down.

Fix controller rate problem.

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

3rd March 2009



PACE5000 SR0082 RELEASE 5 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V01.03.00
Instrument OS Build	DK0366	V01.04.00
Instrument Boot ROM	DK0365	V01.00.00
Module Main Code	DK0364	V01.02.00
Module Boot ROM	DK0363	V01.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

Fix module serial number on boot up screen
Fix IEEE (not working) bug.

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

15th Sept 2008



PACE5000 SR0082 RELEASE 4 COMPONENT VERSIONS

Description	DK Number	Version
Instrument main code	DK0367	V01.02.03
Instrument OS Build	DK0366	V01.03.00
Instrument Boot ROM	DK0365	V01.00.00
Module Main Code	DK0364	V01.02.00
Module Boot ROM	DK0363	V01.00.00

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

Fix bug in lost CAN data
Vent protection warning message added
Various text changes

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

12th Sept 2008



PACE5000 SR0082 RELEASE 3 COMPONENT VERSIONS

Description	DK Number	Version
CONTROL MODULE BOOT CODE	DK0363	V01.00.00
CONTROL MODULE MAIN SOFTWARE	DK0364	V01.01.00
USER INTERFACE BOOT CODE	DK0365	V01.00.00
USER INTERFACE OPERATING SYSTEM	DK0366	V01.02.00
USER INTERFACE APPLICATION	DK0367	V01.01.01

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

Fix bug in lost CAN data
Fix bug in head correction
In Limits resolution increase to 4 d.p's
Maximum timeout values increased
Helium removed from Head Correction menu
Improve bias run

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

29th July 2008



PACE5000 SR0082 RELEASE 2 COMPONENT VERSIONS

Description	DK Number	Version
CONTROL MODULE BOOT CODE	DK0363	V01.00.00
CONTROL MODULE MAIN SOFTWARE	DK0364	V01.00.02
USER INTERFACE BOOT CODE	DK0365	V01.00.00
USER INTERFACE OPERATING SYSTEM	DK0366	V01.01.00
USER INTERFACE APPLICATION	DK0367	V01.00.01

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

N/A.

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

29th July 2008



PACE5000 SR0082 RELEASE 1 COMPONENT VERSIONS

Description	DK Number	Version
CONTROL MODULE BOOT CODE	DK0363	V01.00.00
CONTROL MODULE MAIN SOFTWARE	DK0364	V01.00.02
USER INTERFACE BOOT CODE	DK0365	V01.00.00
USER INTERFACE OPERATING SYSTEM	DK0366	V01.00.01
USER INTERFACE APPLICATION	DK0367	V01.00.01

PACE correct operation support is only with component versions installed into the product agree with the above table.

CHANGES

N/A.

APPLICABILITY OF NEW ISSUE

The issue of firmware should be used in production on the following series of instrument variants: PACE 5000

COMPATIBILITY

N/A.

RELEASE DATE

20th June 2008



Software releases named "beta"

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