# KEYNES CONTROLS

NDACS 6008
Data Acquisition & Logger Unit

- **8 General Purpose 24 Bit Analogue Inputs**
- **1000V Block Opto-isolation**
- **Embedded Web Server**
- **Automatic E-mail Data Reports**
- **E-mail Alarm Settings**
- **3 million Sample Readings/channel using 2 independently programmable loggers**

- **100 Hz/Channel Ethernet Acquisition Operations**
- **Modem & Mobile Phone Data Link Support**
- **Auto-Calibration using in built precision reference**
- **Virtual Private Server support for E-mail forwarding**
- **Ethernet - TCP/IP - RS232 - GSM modem port**

Linux Online! http://www.linux.org

Microsoft Windows
Windows
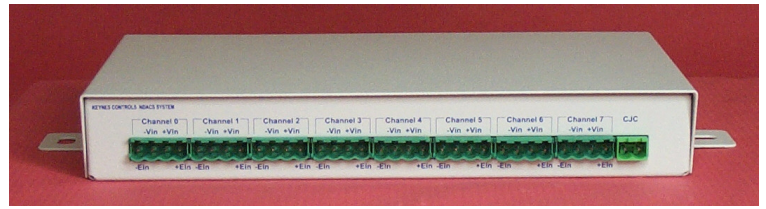
System Description

The NDACS 6008 instrument contains additional Flash memory compared to the 6008 standard model and allows up to 350K records/channel to be stored in a single device. The NDACS 6008 contains all of the same features of the other systems in the NDACS 6000 range.

The NDACS 6008 utilises a low noise 24 bit ADC for all of its analogue acquisition operations. Combined with its low noise sensor pre-amplifiers input noises below 1 uV are achieved.

Flexibility

The NDACS 6008 is one of the most flexible low cost instruments upon the market today. Not only can it read and send data across a network or Internet but it can also record data internally and send automatic reports by e-mail to a user. The instrument is fully integrated to the Internet. Not only can the NDACS 6008 be directly connected to an Internet server but is can be deployed remotely by direct connection to a modem or mobile phone supporting a data link operations.

Remote Deployment

The NDACS 6008 can be deployed remotely to acquire data continually or configured to look for a pre-determined event and to notify the user when it occurs. The NDACS contains all the software to connect directly to radio modems, standard fixed line modems, data link mobile phones and configured to send data to via most dial-up Internet Service provider accounts.

Status Messages

A series of status messages can be sent at preset time intervals or when the instrument restarts to indicate that the system is alive and functioning correctly. These messages are useful to show that the instruments are working when deployed remotely or when waiting for a specific in frequent event to occur.

Data Logging Operations.

The NDACS 6008 supports 2 independent data loggers. An Event logger capable of storing up to 1 million sample readings and a General Logger that stores up to 1 millions samples into 180 time stamped files. The loggers can be set to record data at different rates and under different conditions.
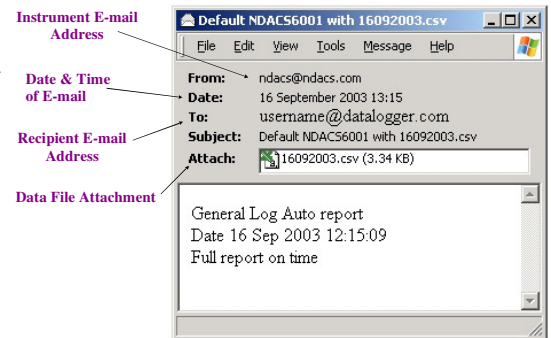
The NDACS can report data automatically after a preset number of records, or up to a specified date or time and also upon detecting a specified event. Each of the loggers can be set to report to a specified User by E-mail. The data files appear as attachments to an E-mail and can opened directly into spread sheet packages that support CSV file format (Comma Separated Variable)

Dedicated Virtual Private Server

Keynes Controls supports a dedicated VPS for forwarding E-mails generated by any of the NDACS 6000 range instruments. For remote operations the NDACS connects into an ISP and forwards E-mails to the VPS from where they are processed and forwarded to the recipients. The VPS gets around the restrictions on forwarding automatically generated E-mails that are often prevented from being sent by via ISP E-mail handling software. Some poor quality ISP suppliers identify NDACS data E-mails as SPAM and prevent their being sent out to Users.

Web Interface

The NDACS 6008 contains an embedded Web interface enabling the configuration of all instrument operations to be carried out using a standard Web Browser no matter which communication interface is being used. The User Interface is the same no matter if the connection to a system is made via the Internet or dial-up telephone connection. Any computer using a modern operating system will be able to examine data without the need for any third party applications software.

Instrument E-mail Address
Date & Time of E-mail
Recipient E-mail Address
Data File Attachment

Default NDACS6001 with 16092003.csv

File   Edit   View   Tools   Message   Help

From: ndacs@ndacs.com
Date: 16 September 2003 13:15
To: username@datalogger.com
Subject: Default NDACS6001 with 16092003.csv
Attach: 16092003.csv (3.34 KB)

General Log Auto report
Date 16 Sep 2003 12:15:09
Full report on time

Supported network controls:

IP Address
Subnet Mask
Gateway
SMTP IP Address

Data Extraction

The NDACS 6000 has 2 independently programmable loggers identified as General Log and Event log. Information from within the Event log can be extracted manually from a set date and time and results stored in CSV file format. Remote access enables full logger configuration operations to be set-up.

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Compliance to European Union Directives

This product is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives:

EMC Directive

The analog modules are tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) and the following standards, in whole or in part, documented in a technical construction file:

EN 50081-2

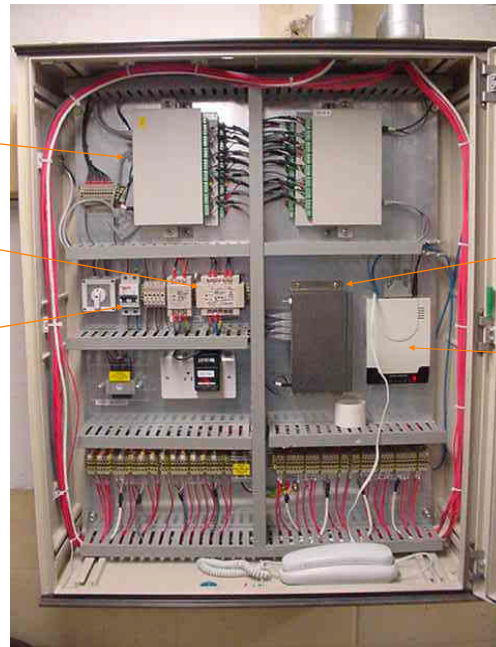EMC – Generic Emission Standard, Part 2 - Industrial Environment

EN 50082-2

EMC – Generic Immunity Standard, Part 2 - Industrial Environment

The NDACS 6000 can be assigned to use any E-mail address making it easy to use multiple instruments reporting data from different sites. The data will appear to the User in exactly the same format as those sent from human operators.

NDACS 6008
Power Supplies
Mains Isolator
Ethernet HUB
modem

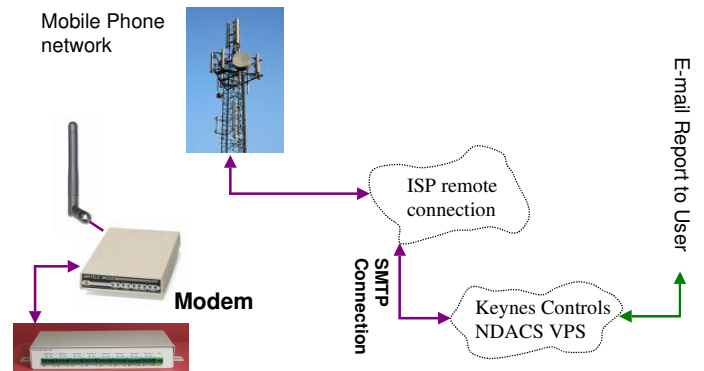**NDACS 6008 Multi-instrument Solution**

Operations

The image above shows a 4 instrument remote network panel system that can be deployed remotely to record and report data from any sensor connected to the system. The information can be accessed remotely by data server computer, observed in real-time by a Web Browser connected to the instruments by the dial-up modem and/or simultaneously by by a local PC connected to the Ethernet port. The instruments can be configured to operate directly onto the Internet so as long as a suitable network connection can be made information can be processed in real-time by many third party SCADA and data analysis packages. A software developers tool case is available for user who require to create their own applications.

Processor	32 Bit
Communication	Ethernet Port - RS232 115 KB
Web Server	Web interface for Configuration & Control
Memory	4 MB RAM - to 512 MB Flash
ADC Resolution	24 Bit Sigma Delta Conversion
Analogue Inputs	8 Full Differential Inputs
Ranges per Channel	50mV, 250mV, 500mV, 1V, 2.5V, 5V
Peak-Peak Noise	0.69 uV @ 1 Hz 120 uV @ 100 Hz
CJC	10 KOhm precision RTD
Thermocouple Types	B,C,E,J,K,N,R,S,T
RTD	Pt100/Pt500/Pt1000 2 & 3 wire
Process Options	Direct Voltage, Thermocouple, RTD, Strain Linear, Scaled Current (0-20mA,4 -20mA) User Defined Engineering units
Isolation	1000V Block Isolation
Overload Protection	25V Full Load
Power Supply	12V Nominal (9-24V DC) at 5W
Real Time Clock	24 Hour Fornat. HH:MM:SS
Sample Rates	Local Area Network/Internet 1, 2, 5, 10, 20, 50, 100 Hz/Chan
General Logger	1 million sample readings. stored into 180 Time stamped files
Sample Rates	1 sec - 3600 secs (hour)
Auto Report	Daily/Weekly/Monthly/Number Records
Event Logger	1 million sample readings/channel.
Sample Rates	0.1, 1, 10, 60, 600 (10min), 3600 (1 hr)
Auto Report	Daily/Weekly/Monthly/Number Records
Physical Dimensions	
Enclosure Style	Desktop & Bulkhead mounting
Height	230 mm
Width	130 mm
Mounting Hole Diameter	6 mm (Bulk head mounting)

Typical NDACS Remote System Layout

Mobile Phone network

E-mail Report to User

ISP remote connection

SMTP Connection

Modem

Keynes Controls NDACS VPS

Applications

The NDACS instruments are high precision general purpose loggers and Ethernet data acquisition systems and are ideally suited to form large remote data acquisition systems. The instruments can be deployed to record data continually, to look for and report a specific event or to simply send data to remote SCADA systems across the Internet.

An E-mail alarm system can be configured to send alarm messages to multiple users should any preset condition be exceeded. No matter how communication to the instrument is made the same User Interface is maintained and all instrument operations can be configured by an industry standard Web Browser.

See **NDACS Auto Reports** & **E-mail Alarms f**or further information.

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