

# nanodac™ Recorder/Controller

MODEL

## Purpose of this note

This application note will describe how to extract archived data (both secure UHH and CSV formats) from the nanodac recorder/controller.

Data extraction of secure UHH files will be described with an example of how to set that up. We will also provide links to Eurotherm 'Review' and 'Dream Report' software that can extract the secure data for historical trending and reporting purposes.

Open CSV data extracted and imported to Microsoft Excel will be described with an example spreadsheet shown.

This note also shows how Eurotherm's unique instrument 'Store & Forward' functionality operates

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# Eurotherm



## Archiving Data from the nanodac Recorder/Controller

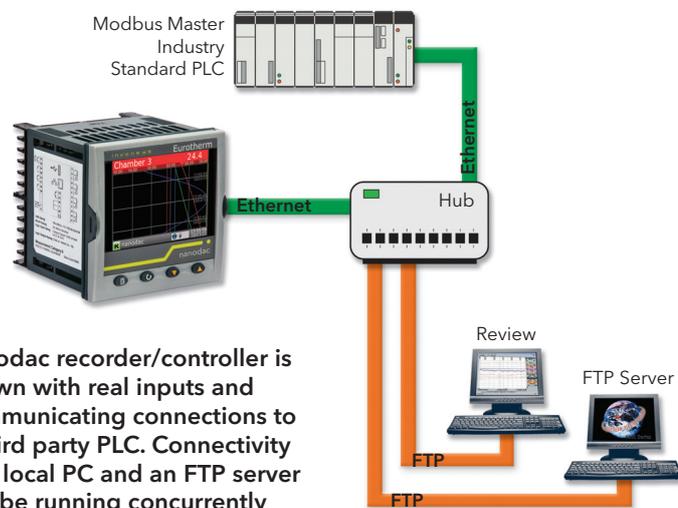
### Application Note

## Product

The nanodac recorder/controller provides combined recording and control in a single 1/4 DIN package.

Invensys Eurotherm has taken its extensive knowledge of secure recording and accurate PID control and combined them in one small box with a display that is so strikingly clear it belies its size.

The nanodac™ recorder/controller offers the ultimate in graphical recording combined with PID control for a box of its size. The compact 1/4 DIN panel mount unit offers four high accuracy universal inputs for data recording and PID control. This secure data recording device with accurate control is enhanced by a full colour, 1/4 VGA display to bring a crystal clear operator interface to even the smallest of machines.



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# Archiving Data from the nanodac Recorder/Controller

## Introduction

The nanodac recorder/controller is ideal for use on any application requiring up to four real universal inputs. An additional fourteen inputs can also be written to over communications effectively making an eighteen channel data logger. Two PID control loops can be added for applications such as ovens, furnaces, and chambers etc where it is required to monitor temperatures and control the loads.

The nanodac recorder can store your information in either open CSV format or in a secure (UHH), check summed format to protect data integrity.

In addition to live trending, a simple menu allows any selected portion of the recorder history to be archived, either to a 'memory stick' plugged into the USB port at the rear of the recorder (Local Archiving) or to a computer or server, by means of the FTP protocol (Remote Archiving). The archived data remains in the flash (50MB) memory of the instrument and can be reviewed directly on the instrument display.

The archive period can be chosen between the last hour, last day, last week, last month, archive everything in the recorders history or archive all files created since, or updated since the last archive. The status of the archive is displayed on the nanodac recorder/controller which shows when data is being transferred or is complete.

The archive data includes actual values from real or comms channels (PV), Alarm Messages, and Operator input Messages all of which are accurately dated and time stamped from the on-board real time clock.

## PC tools to keep your data secure yet provide the flexibility you need

The nanodac recorder is supported by PC based tools to get your data in the way you need it. Review software acts as an efficient and secure library for data from which charts can be reviewed printed and exported to other PC packages as required. Review maintains the integrity of secure, binary files (UHH format) created by the nanodac recorder and can be configured to pull data directly over the network to provide a third data back up route.

- Automatic, data archiving to removable USB memory stick (up to 8GB)
- Automatic, remote data archiving over Ethernet network using FTP
- Automatic, remote data archiving directly into Review database

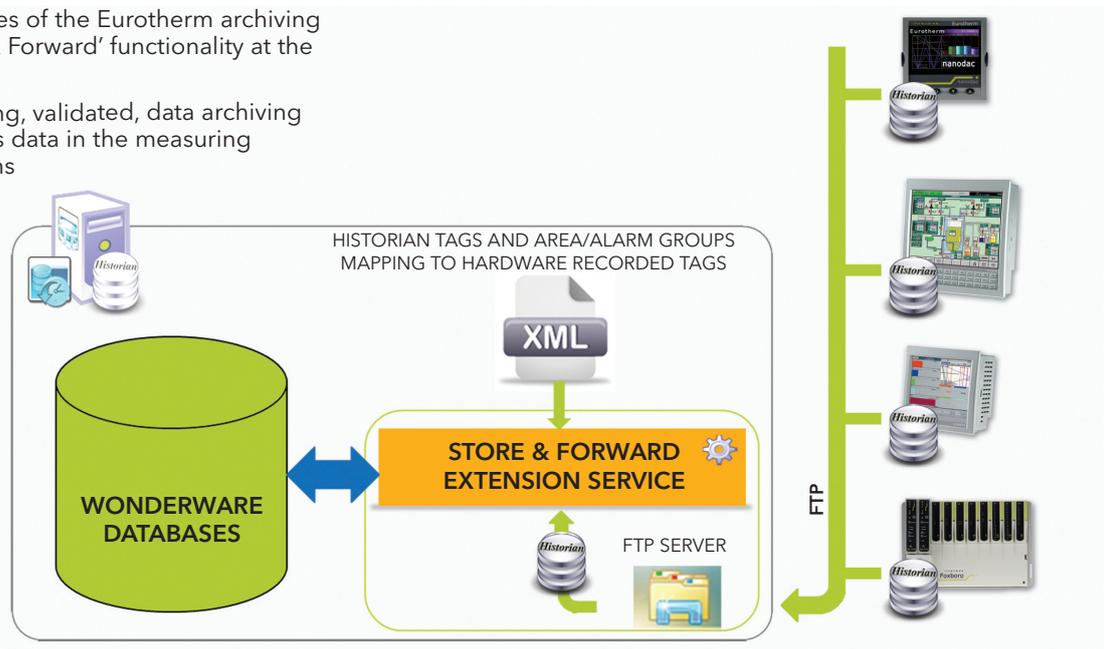


## Self Healing Data Archiving with 'Store & Forward'

One of the many unique features of the Eurotherm archiving strategies is to provide; 'Store & Forward' functionality at the instrument level.

'Store & Forward' is a self healing, validated, data archiving system that automatically stores data in the measuring device during a communications failure and then forwards this to the configured PC/server when communications have been reinstated. This results in secure electronic recording with total data integrity.

**Note:** 'Store & Forward' is a common functionality included in any of the Eurotherm electronic archiving products. Other than configuring the PC/Server with the relevant software loaded, there are no other setup procedures required - Data Security is Implicit.



## Application Example 1

This example works through the process of manually transferring archived data to a PC in secure binary (UHH) formats.

### Steps required to configure the archive:-

Network Archiving	
Rate	None
Destination	FTP Server
Compression	Normal
File Format	Binary (UHH)
Remote Path	
Primary Server	192.168.1.1
Primary User	

In Network Archiving configure the 'Destination' to 'FTP Server' and 'File Format' to 'Binary (UHH)' \*.

It is then necessary to define the destination for the data file. Enter the IP address for the PC to be used for the primary server and User and Password assigned by the administrator. You can also optionally add a secondary server that will be used if for any reason the primary is not available.

Demand Archiving	
Archive To	FTP Server
Archive	Last Day
Cancel All	No
Primary Status	Inactive
Sec. Status	Inactive
Last Written On	05/01/2010 09:00:00

Set up the PC as a server as described in the User Guide HA030554 Appendix C. Connect the destination PC to the instrument using the ethernet RJ45 connector.

In 'Demand Archiving' select 'Archive To' as 'FTP Server' and 'Archive' to the required period, for example 'Last Day'. The data for the preceding day will be transferred as soon as you scroll away from this entry.

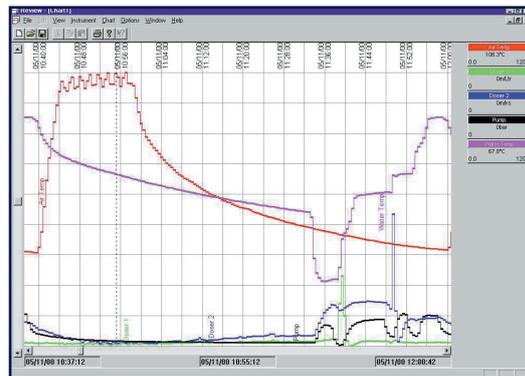
The file produced will be a file containing binary data with the extension .uhh. This is a secure format and requires software such as Eurotherm 'Review' to interpret the data. It is possible to produce both CSV and binary files by configuring 'File Format' to 'Both'.

### Eurotherm Review

Eurotherm Review is a PC based software package that allows for display and printing of secure archived data files from a wide range of Eurotherm instrumentation including the 6000 series, T2550 Programmable Automation Controller, the Eycon™ Visual Supervisor, Eurotherm Suite, and Security Manager. Review can be configured to automatically pull files directly from the instrumentation or a specified folder on an FTP Server, or read directly from the removable media.

Alternatively Eurotherm instrumentation supporting Data Recording and Archiving can be configured to push files to a suitably named folder on an FTP Server. Once transferred into the Review database graphical representations of the process data can easily be created. Eurotherm Review software is available in two versions, Review LITE, which is supplied free with instrumentation that supports Data Recording and Archiving and the enhanced FULL version which provides the user with advanced features such as Automatic print, and Auto-Archive.

### Typical Eurotherm Review Software Historical Trend Chart and Review Feature List



FEATURE	Review		QuickChart	
	FULL	LITE	FULL	LITE
Run Review as a Service	X			
Scheduled Backup from Folders	X			
Automatic Print at End of Batch*	X			
Automatic Print to PDF at End of Batch**	X			
Spreadsheet View	X			
Security Manager Support	X			
Auto Archive from Database	X			
Automatic Backup + Transfer	X	X		
Save Chart	X	X	X	X
Print Chart	X	X	X	X
Copy to Clipboard	X	X	X	X
Search by Batch	X	X	X	X
Auto Zone	X	X	X	X
Scale Print Selection	X	X	X	X
Time Zone Indication	X	X	X	X
Annotate Chart	X		X	
Open Chart Direct from Files or Folders			X	
Open Chart Direct from Removable Media			X	X
Open QuickChart File			X	X
Save QuickChart File			X	X
Lock Chart			X	X

\* Must have Batch enabled on 5000/6000 instrument

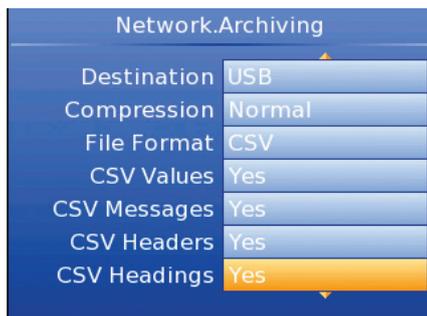
\*\* Must have Batch enabled on 5000/6000 instrument, and a PDF writer installed on PC

# Archiving Data from the nanodac Recorder/Controller

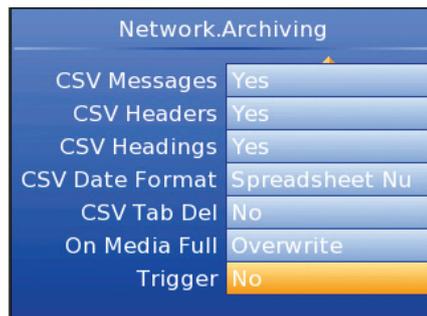
## Application Example 2

This example causes a CSV (Comma Separated Variable) file to be produced to a memory stick fitted in the USB socket. The .CSV file can be opened in a spreadsheet such as Excel.

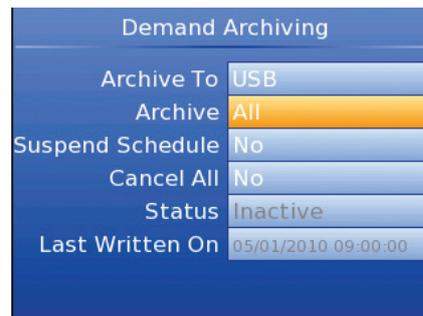
### Steps required to configure the archive:-



In Network Archiving configure 'File Format' to 'CSV' (comma separated variable).



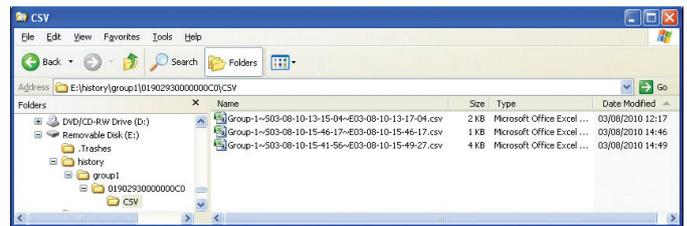
### To archive data:-



Go to 'Demand Archiving' and in 'Archive' select the period which you wish to archive. You can choose from Last Hour, Day, Week, Month or all data in the instrument memory.

Scroll away from this parameter to transfer the data. The progress can be seen in 'Status'.

The file produced is shown below and the path shown is automatically produced.



(The folder under group1 shows information about the device including its MAC address. When 100 files are produced in this folder another later folder is produced).

Note: That MAC address is unique to the device and can be used in determining the exact source of the original data.

Open the latest file to show the .CSV data in Excel. The format produced in Excel is fixed but sections can be turned on or off in the Configuration menu ('Network Archiving') using the parameters shown in the spreadsheet below.

Instrument	Name=	nanodac	Serial number=	0	Software Version=	1.9	Country=	GB	Time Zone=	GMT
Group Name	Group 1		MAC Address=	00:0A:8D:01:90:29	Language=	EN				
Channel 1	Low=	10	High=	40	Units=	°C				
Channel 2	Low=		High=	1	Units=					
Channel 3	Low=	0	High=	10	Units=	V				
Channel 4	0=	Open	1=	Closed						
VirtualChan 2	Low=	0	High=	100	Units=	Deg F				
VirtualChan 3	Low=	0	High=	100	Units=					
VirtualChan 7	Low=	0	High=	100	Units=					
Date/Time	Channel 1	Channel 2	Channel 3	Channel 4	VirtualChan 2	VirtualChan 3	VirtualChan 7			
	*C		V		Deg F					
	41:56.7									
	System power up									
	41:56.7									
	Config Revision: 13									
	41:56.7									
	Security Revision: 2									
	03/08/2010 15:41									
	Archiving resumed									
03/08/2010 15:42		31.5	Off	0	0	88.61	95.53	27.99		
03/08/2010 15:42		31.6	Off	0	0	88.86	95.53	27.99		
03/08/2010 15:42		31.5	Off	0	0	88.7	95.53	27.99		
03/08/2010 15:42		31.6	Off	0	0	88.8	95.53	27.99		
03/08/2010 15:42		31.6	Off	0	0	88.96	95.53	27.99		
03/08/2010 15:42		31.7	Off	0	0	89.02	95.53	27.99		
03/08/2010 15:43		31.6	Off	0	0	88.93	95.53	27.99		

CSV Date/Time Data automatically imported as Excel date/time

CSV Instrument Data

CSV Channel Headers

CSV Data

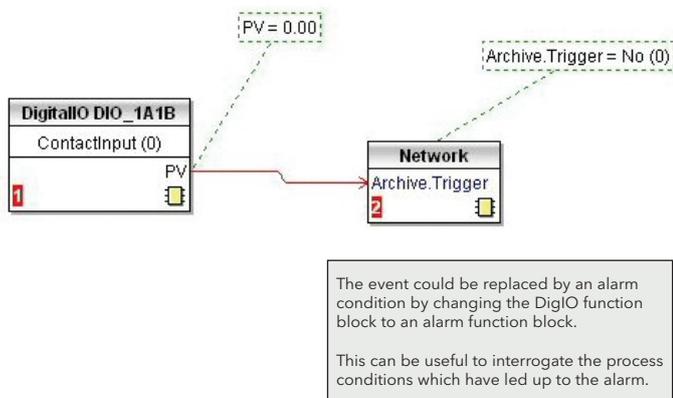
## Application Example 3

The requirement is to record data to a memory stick leading up to the occurrence of an event (say 1 hour). The recorded data is to be shown in Excel.

This example causes a CSV file to be produced when an event occurs. The event may be internal (triggered, for example, by an alarm condition) or external (triggered by a digital input). In this example an external event, connected to Digital IO 1, triggers the production of a CSV file by activating the parameter 'Archive.Trigger' located in the Network function block.

It is first necessary to internally (soft) wire the output from the digital input block to the trigger input of the Network function block. This wire may be made through the front panel buttons on the recorder using the wiring function. Alternatively, use the graphical wiring editor in iTools as shown in the diagram below.

When wired the parameter 'Period' appears. In this parameter choose the period required for the data leading up to the alarm or event eg 'Last Hour'.



When the event occurs data is automatically transferred to the memory stick. This can be seen in Demand Archiving under Status → Complete → Transferring → Complete.

Further information may be downloaded  
from [www.eurotherm.co.uk](http://www.eurotherm.co.uk)

### nanodac Recorder/Controller

User Guide HA030554  
Brochure HA030685  
Specification sheet HA030686

### iTools Configuration & Monitoring Software

Help Manual HA028838

### Eurotherm Review PC Based Software Package

Brochure HA028081

### Dream Report Software

Brochure HA029515  
User Friendly Reporting Software

### Data Security with Store & Forward

Brochure HA029878

### Environmental Quality Monitoring System

Brochure HA030142

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