



# PlantProtech™

## 720 Advanced Plant Monitor



## Introduction

Minimise machine failures, increase availability and reduce costs by reliably monitoring your machine health. Designed for small turbines, pumps, wind turbines, cooling tower fans and auxiliary plant items.

### PlantProtech 720 Advanced Plant Monitor

Providing a powerful and versatile automated surveillance system for all of your strategic plant items where increased monitoring is required.

- Automated data collection
- Monitoring of all types of machinery
- Continuous monitoring of your machinery 24/7
- Easy comparison of vibration data with process parameters

### Designed For...

- Cooling water pumps
- Emergency boiler feed pumps
- Wind turbines
- Hydro turbines
- Cooling tower fans
- Industrial gas turbines
- Auxiliary plant items such as ID, PA, FD Fans
- Machinery requiring continuous monitoring

### Key Features

- A cost-effective alternative to “walk-around” periodic monitoring solutions
- Routine surveillance of critical plant items
- 16 channels for vibration and process data
- 4 speed inputs
- Autonomous internal data storage
- Local display of real-time vibration levels via LCD display
- Local alarm traffic light display and readout
- Stand-alone and network operation
- Open interface for implementation with other third party applications
- Data export via USB
- Internal constant current transducer power supplies
- Panel mount, surface mount or DIN-rail mount installation options available
- Integrated within the Beran PlantProtech Condition Monitoring System

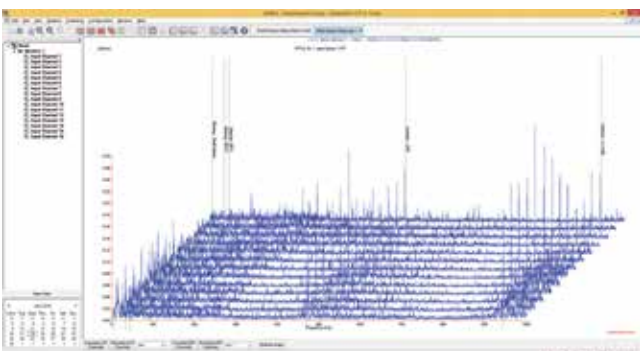
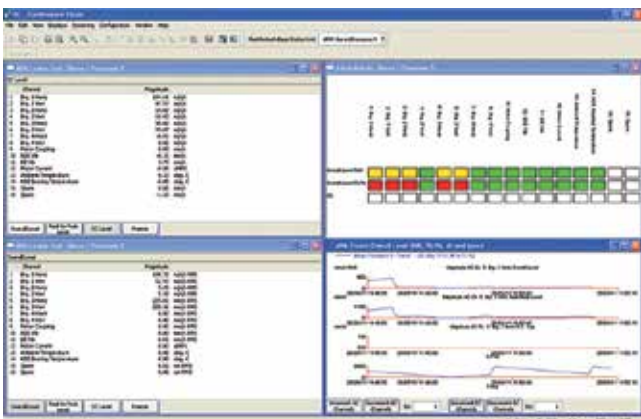


# Software Displays

Easy installation, powerful data acquisition and versatile displays make the PlantProtech 720 the perfect partner for your Condition Monitoring regime.

## Software

The Beran PlantProtech Vision software has been the industry standard for Condition Monitoring of strategic machinery assets such as turbine generators, and has now been extended for viewing PlantProtech 720 data.



## Displays include:-

- Overall levels
- Peak to Peak Levels
- Order locked vibration levels, magnitude and phase
- Speed value
- Orbit
- FFTs
- FFT Bands
- Synchronous Time Domain
- Alarms
- Alarm logs
- DC Gap and Bias Voltage
- Trend Displays
- Enveloping

## Measurement Regime

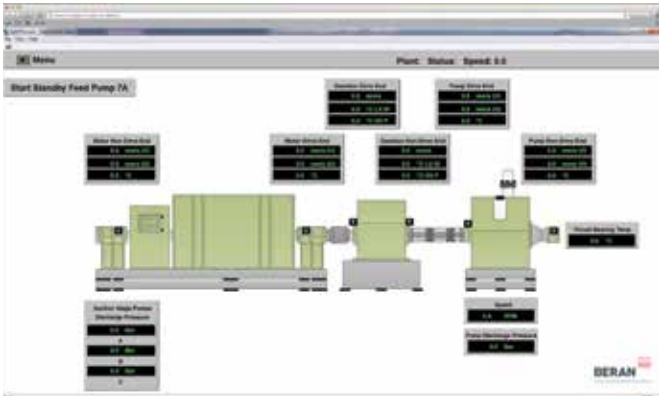
The PlantProtech 720 provides a very powerful and flexible monitoring regime under automated control:

- User-configured periodic data acquisition, i.e. time of day, days of week, days of month
- Acquisition intervals can be based on time or speed
- Data acquired on alarm event
- Multiple data acquisition regimes may be configured

The user can configure the PlantProtech 720 to store data at periodic time intervals such as once per day, hour, or as a result of speed change, whilst simultaneously recording asynchronous time domain on a specified channel every user programmed number of minutes. All acquisition is controlled independently by each PlantProtech 720. Using the PlantProtech 720 provides a flexible monitoring approach to ensure important data can be captured at the time of the event.

# Software Displays & Alarms

## PlantProtech Dashboard



PlantProtech Dashboard provides a pictorial overview of the machinery monitored providing quick access to levels and alarm information.

Dashboard is designed to be used by plant engineers requiring a summary of current plant information, such as Operations Engineers, accessing more detailed data is through PlantProtech Vision.

Dashboard operates in a browser window enabling ease of use and access from multiple devices including conventional PCs, Tablets and Smartphones ensuring data is accessible whenever and wherever it is needed.

Dashboard screens can be configured to display machinery mimics with additional information overlaid including text levels, current levels shown as bar graphs and current alarm activations.

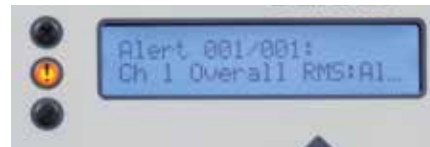
## Integration with Third Party Applications

Integration to third party systems is via an Open Interface.

The PlantProtech 720 incorporates the ability to transfer data via a Web Services Open Interface, enabling integration with third party applications utilising the power and versatility of the PlantProtech 720 monitor.

## Stand-Alone Operation

The PlantProtech 720 can operate stand-alone, with all data acquisition storage performed internally. Data can be downloaded via the USB port for import into PlantProtech Vision software or third party mathematical applications, i.e. MATLAB™.



PlantProtech 720 - Alert



PlantProtech 720 - Alarm

## Alarms

All alarm processing is performed internally, based on RMS levels. The alarms can be configured to drive 1 of the 8 digital outputs. Alarms may be latched in the event of an excursion, requiring user acceptance.

An internal log records alarm activations to assist the user in reviewing events.

Alarm activation can be determined from the front panel via both the traffic light indicators and interrogation of the LCD display.

The Beran PlantProtech Vision software shows the current alarm status.

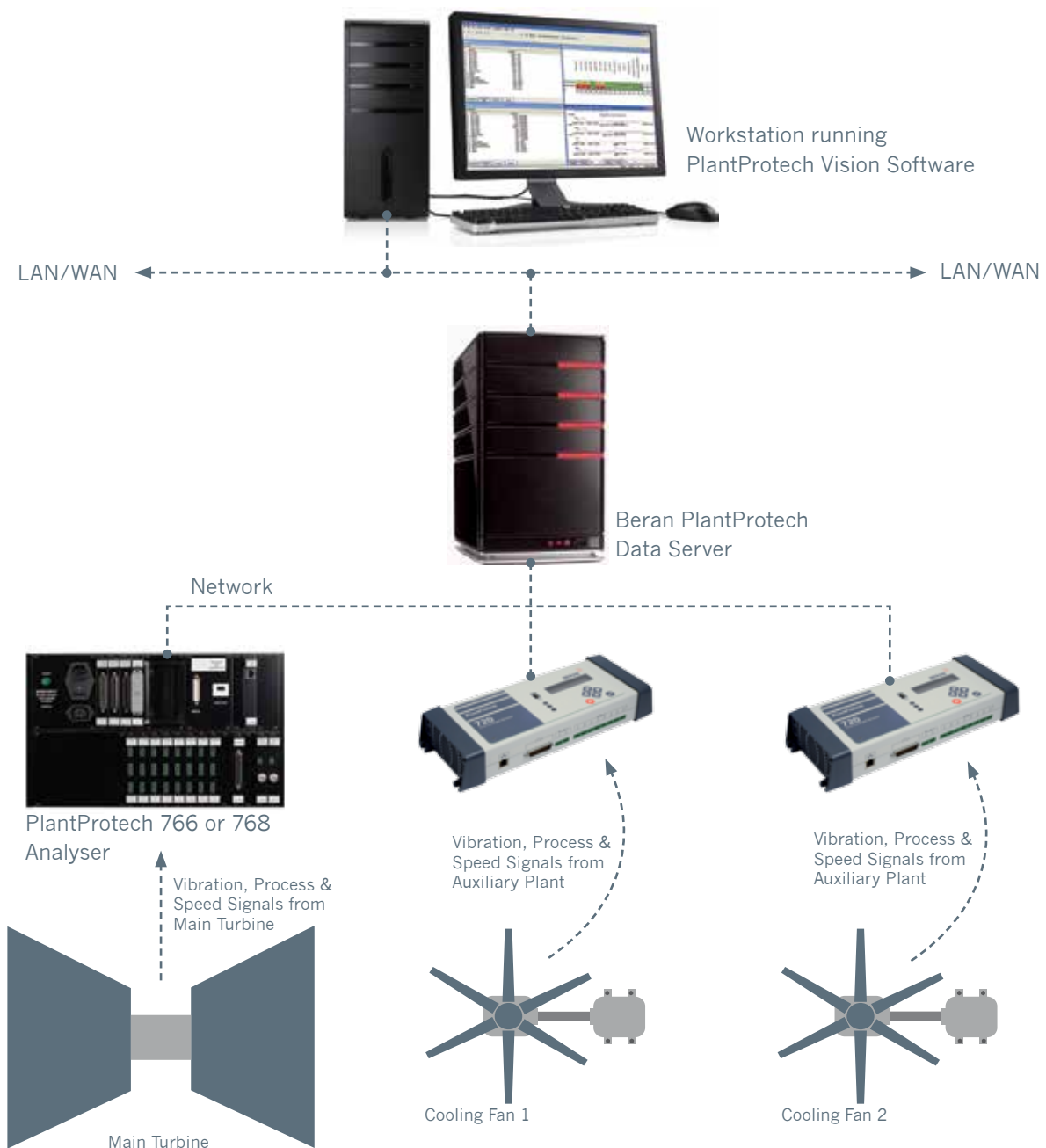
# Stand-Alone & Networking

PlantProtech Vision software provides an integrated platform for the review of Condition Monitoring data acquired by PlantProtech systems.

## Networked Operation

Data is stored internally within the PlantProtech 720. Automated data transfer to the Beran PlantProtech Server is either via hardwired links, or where sites allow across Wi-Fi connection (requires third party hardware).

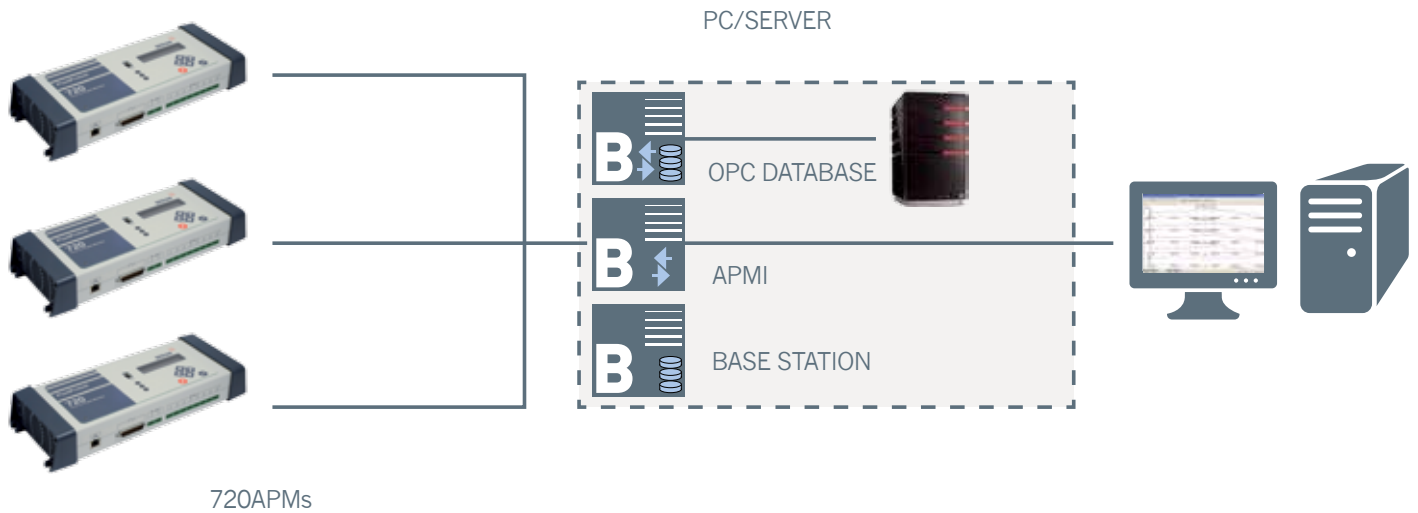
System health engineers can access the PlantProtech 720 systems via site networks. Remote engineers can access and download data to their remote locations using the PlantProtech Vision software.





## Integration to Station DCS Systems

Bi-directional data transfer between PlantProtech 720 and Process Control DCS Systems.



Process data from Distributed Control Systems (DCS) can be imported into the PlantProtech 720 system for the easy review and comparison of plant information with vibration data from machinery.

As well as importing data from DCS, acquired machinery data from the PlantProtech 720 systems can be exported to the DCS.

Interfaces exist for OSI soft™ PI system™ and OPC® databases.

## Installation Options

Range of cubicles to house PlantProtech 720 Advanced Plant Monitors

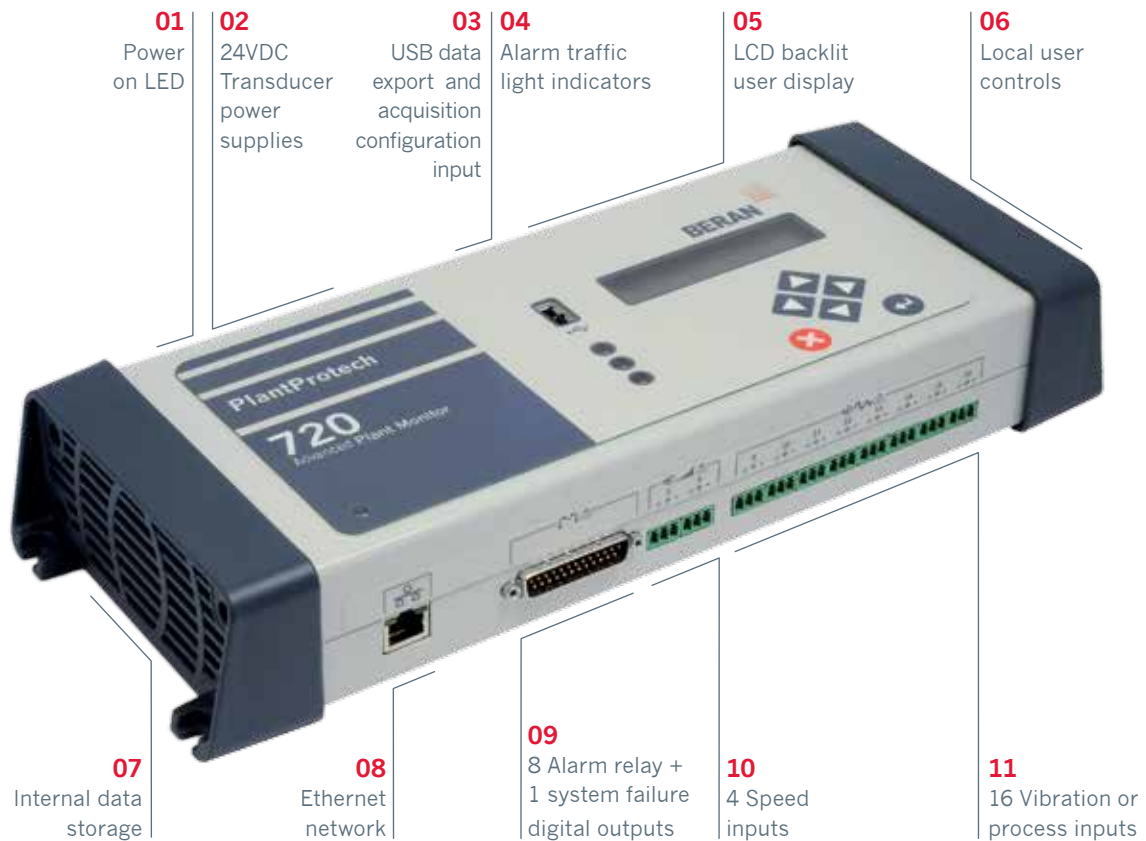
PlantProtech 720 can be supplied for installation by users or supplied pre-assembled into wall mounted panels with integral signal and power distribution. Options exist for single, double, quadruple and eight PlantProtech 720 monitors into a single cubicle installation. Additional options include network hubs or 3G routers.

Signal cabling is wired to terminals enabling easy installation on site.

A portable ruggedised plastic case version is available, providing rapid deployment to plant areas that require temporary monitoring, connection to sensors is via BNC inputs.



# PlantProtech 720 Specification



## Specification

<b>Dimensions (mm)</b>	360 x 140 x 60
<b>Measurement Inputs</b>	16 channels of vibration or process inputs: accelerometer; velocity transducer; eddy current probe; process inputs, e.g. 4-20mA, 0-1V, 0-10V
<b>Acquisition</b>	Vibration/process: 24-bit A/D converters with 20kHz bandwidth per channel
<b>Transducer Power Supply</b>	Switchable on/off transducer constant current source
<b>Speed Inputs</b>	4 channels including power output for transducers
<b>Measurement Regime</b>	16-channel parallel acquisition (overall level, time domain, synchronous time domain), Up to 4 orders magnitude and phase, user selected FFT bands
<b>Alarms</b>	8 digital outputs (Solid State relay)
<b>System Alarm</b>	1 digital output for system failure (Solid State relay)
<b>Display</b>	Local backlit LCD 2 lines x 20 characters
<b>Alarms Status Indicators</b>	'Traffic light' LED plant health indicators (Red, Amber, Green)
<b>Data Storage</b>	Local internal solid-state storage
<b>Data Transfer</b>	Via USB memory stick or Ethernet
<b>Connectivity</b>	Ethernet 10/100 BaseT RJ45 connector
<b>Power Supply</b>	10VDC to 36VDC <50W
<b>Software</b>	Integrates with Beran PlantProtech Vision software
<b>Temperature Range</b>	-20°C to +60°C (operating) -40°C to +75°C (storage)
<b>External Data Interfaces</b>	OSIsoft PI / OPC



Credit: NASA

## Beran Instruments

Decrease risk and increase your revenues with our Proven PlantProtech™ Condition Monitoring Solutions. Speed up testing with our ISO standard noise and vibration TransCal™ Systems.

PlantProtech™ is Beran's platform for Condition Monitoring of rotating machinery, built on over thirty years of industrial experience and innovation.

The PlantProtech hardware / software family is in use throughout the global power industry, installed on Nuclear, Fossil, Hydro, CCGT and Combined Cycle industrial plant.

Originally designed to meet the requirements of the UK Power Generation Industry, our PlantProtech systems have been proven to pay for themselves many times over. As user requirements have increased, the PlantProtech range has developed accordingly.

By means of continuous on-line vibration monitoring, changes in the health of the plant may be detected early. Powerful analysis tools allow the root cause of the problem to be identified, enabling operators to make crucial decisions, and in many cases, plant can be run with confidence through to planned outage or scheduled maintenance.

The PlantProtech range of integrated hardware and software products provides you with a solid foundation, which can be expanded as required, ensuring the safe and efficient continued operation of your assets.



This document is not contractual. Beran maintains a policy of continuous product development and improvement. This specification may change without notice.

Beran Instruments is registered to BS EN ISO 9001:2008 / AS9100

PB-3184-02 Issue 2