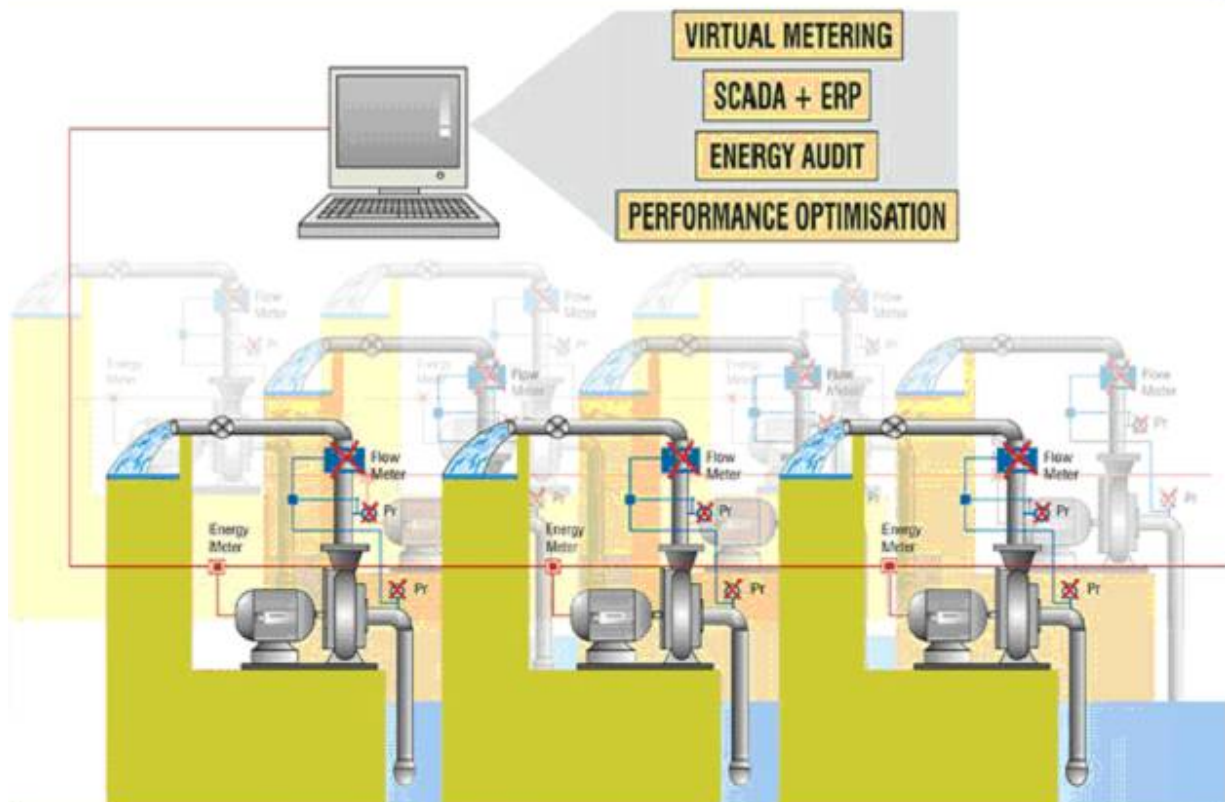




DATAMATRIX PERFORMANCE OPTIMISER

□ **DPO2** □

INNOVATIONS IN PUMP MONITORING, ENERGY AUDIT AND OPTIMISATION



Datamatrix Virtual Pump Station

INTRODUCTION □

Pumping systems are designed for a specific duty point. However in reality, pumps operate at various points other than the designed duty point. This happens mainly due to different combinations of pumps in use, wear and tear and the changes in operating environments such as water level, frequency etc. As a result, pumps operate at lower efficiency than the designed levels.

Conventional analysis and audits are carried at a specific duty point and the results could be far from reality. The pump performance varies according to the operating conditions and the key to better pump performance lies in monitoring the real time environment and reacting to it.

THE TECHNOLOGY □

Datamatrix technology overcomes the deficiencies in the current methodologies and greatly enhances the scope for performance optimization with immense benefits.

The Datamatrix performance optimizer- DPO2 is an integrated software based solution for on line pump monitoring, Energy audit and Performance Optimisation. It continuously monitors all the operating parameters of the pump house and facilitates optimization like never before.

This technology operates on the principle of creating a virtual machine in the computer replicating the actual machines in the field. DPO2 configures the virtual machine by entering the test data of the entire pumping network. Thus the system captures the characteristic behavior of each machine. The virtual machine is then continuously compared with the electrical signal from the energy meter connected to the pumps to arrive at the operating point of each pump. The system then internally computes other critical parameters of the pump such as flow, head, efficiency etc. and the same are displayed continuously. By providing the pressure input in addition to energy input, Datamatrix system will verify the correctness of the simulated data and confirm that the system is operating according to configured characteristics. The system is designed to handle 50 pump sets at a time.

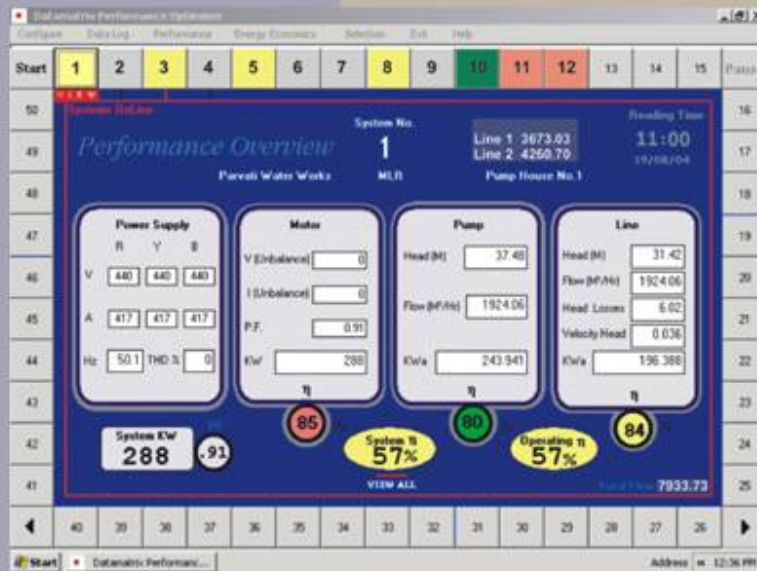
APPLICATIONS □

DPO2 will find its applications in all pumping utilities for a variety of functions from total integrated metering to detailed analytics, audits and performance optimization.

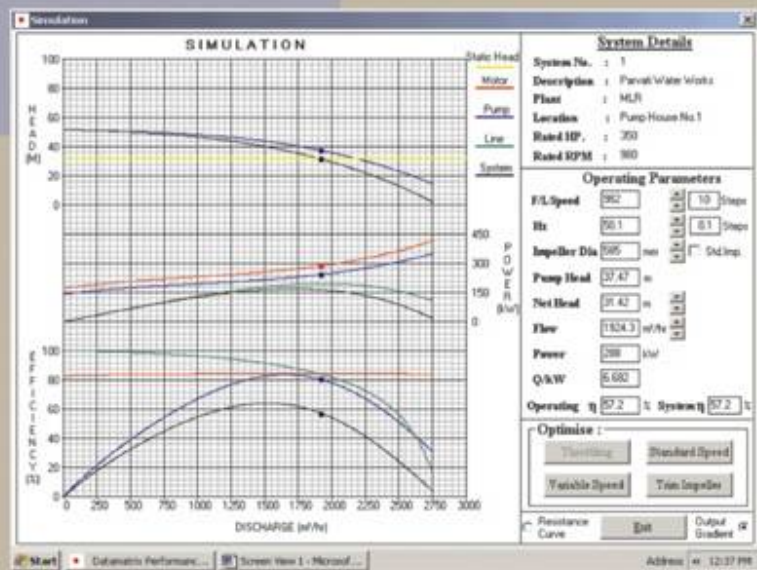
It can also be used for advanced pump automation along with any PLC/DCS based systems. It is an ideal solution for effective management of the pumping networks for public utilities, industries & irrigation schemes.

The reliability, simplicity and the cost effectiveness of DPO2 make it the most sought after solution for integrated plant management.

SCREEN VIEWS



Performance Overviews



Simulate Performance

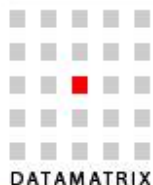
OTHER STANDARD SCREEN VIEWS

- (a) Pump Wise Discharge & KWH with Running Hrs. (b) Load Profiles (c) Saving Scope by Retrofits
- (d) Saving Potential by Replacements (e) Actual Saving achieved for a period under Review

THE SALIENT FEATURES

- **100% INTEGRATED METERING** : DPO2 indirectly meters all the operating parameters of the individual machines and systems, eliminating the need of physical distributed metering, saving the costs on expensive flow meters.
- **SCADA** : The powerful analytics created by the system and the advanced automation features make DPO2 the most powerful SCADA with ERP functions.
- **ON LINE PERFORMANCE MONITORING** : The continuous display of operating parameters by DPO2 enables the operating personnel to monitor the performance of the plant to the minute detail.
- **CONDITION MONITORING** : The condition monitoring feature of DPO2 will identify the deviations in the machine characteristics on line, helping out in fault diagnostics. This feature can also be used to identify the machine deterioration over any specified period.
- **AUTOMATED ENERGY AUDIT** : The system will carry out continuous energy audit against every data logged and compare it with the machine capabilities to arrive at optimum solutions.
- **PERFORMANCE OPTIMISATION AND ENERGY CONSERVATION** : The DPO2 provides a three tier performance optimisation with assured savings as follows.
 - **Operational Control** : The performance overview enables the operating personnel to choose the best combination of pumps in a dynamic environment for optimum performance. The process can be further optimised by speed control, throttling etc as suggested by the system.
 - **Retrofits** : The DPO2 will capture the saving opportunities in retrofits. The simulation feature will swiftly guide the engineers to decide on trimming the impeller, and other corrective actions to achieve the optimum efficiency. It can also highlight the excessive losses pertaining to defective components.
 - **Machine replacement** : The energy economics feature provides ready analytics quantifying the savings in Rupee terms over any period, enabling the management to take swift decision about replacement of less efficient Pumps/motors
- **ASSET MANAGEMENT** : DPO2 identifies the saving opportunities on line, and helps plan and schedule the preventive maintenance and replacements of the machines, making it the most powerful asset management tool.
- **REMOTE MONITORING** : All the pumps in the pump house can be remotely monitored from any distance through internet and it is possible to collaborate with the best brains across the world in case of any eventuality or high level consulting.
- **ADVANCED AUTOMATION** : DPO2 can be used for advanced plant automation and process control in tandem with conventional technologies using PLC or DCS.
- **COST EFFECTIVE SOLUTION** : All the above outstanding features are made available at a fraction of the cost of conventional technologies with attractive payback period.

Note : Optional features include monitoring of vibrations, temperatures and noise levels.



DATAMATRIX

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