

EMERSON[™]
Industrial Automation

Intelligent Drive Solutions for the Water Industry

Up to 1.9MW

110V / 200V / 400V / 575V / 690V



**CONTROL
TECHNIQUES**

www.controltechniques.com

High efficiency pump control systems

Water companies are under unprecedented pressure from rising energy costs as well as legislative and climate change. Developing strategies to reduce operating costs whilst optimising the performance of assets is critical. Control Techniques provide new solutions to enhance connectivity, reduce energy consumption, minimise downtime and to react intelligently to real problems as they occur.

Optimised drive solutions for the Water industry

As market leaders in intelligent drives, Control Techniques' drives present a new approach to managing your assets. Our products combine high reliability, compact size and the flexibility to incorporate additional functionality such as intelligent pump control, I/O for instrumentation and TCP/IP based telemetry solutions within the drive.



Achilles UVDB registered

Control Techniques are a fully registered supplier on the Achilles Utilities Vendor Database (UVDB) for the following product/ service categories:

- 1.08.18 Programmable Logic Controllers (PLC's)
- 1.24.13 Switchgear - Variable Speed/Soft Driven
- 1.24.14 Switchgear - Direct Current (DC)



Control Techniques' Intelligent Pump Control drive system

Control Techniques' Intelligent Pump Control (IPC) system delivers measurable improvements in pumping reliability, up-time and performance. In real installations it significantly reduces the costs associated with operating these assets while improving throughput and availability.

Solutions to real problems

A long standing pumping problem suffered by water companies is that of 'ragging', the fouling of pump impellers in waste water systems. Manually clearing the problem is a costly and unpleasant task requiring a maintenance team and frequently a crane. Downtime may extend to several days during which time the back-up systems are under additional pressure. A total system failure can result in effluent leakage with implications for the environment, human health, clean-up costs and breaches of legislation.

Control Techniques' IPC system accurately monitors pump performance by "live" continuous measurement of torque producing current, plus flow and pump

speed where appropriate. The live data is compared to measured values taken during commissioning, plus expected pump profile characteristics. Due to the precise nature of the pump monitoring programme, any "out of profile" performance feedback triggers an early warning indication of potential pump ragging/blocking. This initiates an automatic drive based cleansing cycle programme to help clear the pump impeller. The system is also able to schedule real time pipe scouring cycles, detect deteriorating flow and potential impeller wear.

Control Techniques' IPC is totally embedded within the drive, and other than instrumentation no other components are required.

Remote monitoring

Our IPC system allows remote monitoring using a click-in Ethernet option module onboard the drive. Control Techniques software tools enable access to "live" pump performance operational views and data collection, off site.



Reducing energy costs and improving processes

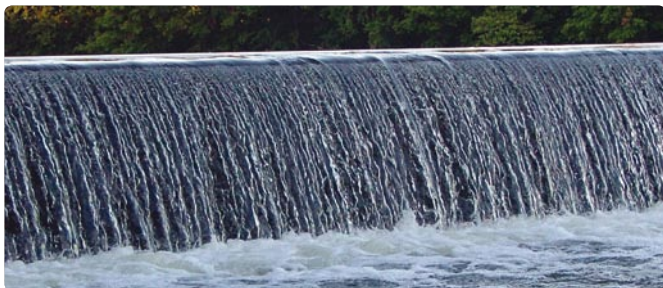
Installing variable speed drives to control pump flows to match operational demand, can significantly contribute to a reduction in energy consumption and improve process control. In some applications, intelligent systems are able to further reduce energy costs by operating during off peak tariffs. Control Techniques drives provide a kWh reading to allow the energy savings to be easily monitored.

Technical expertise to meet supply harmonics and EMC regulations

In many cases, meeting the regulatory requirements for harmonics and EMC can be demanding, especially in residential locations or for sites far from the electrical sub-station. Control Techniques can provide a range of cost effective solutions to meet requirements for both EMC interference and supply harmonics, such as filtering, multi-pulse systems and active front end technology.

Compact drives with built in redundancy

Due to the high efficiency (up to 98%) and innovative chassis construction, Control Techniques drives are extremely compact. This allows them to be used for retrofit applications using existing control panels and makes them easy to handle for installation and maintenance. This is also true for high power drives above 132kW where a modular approach is adopted, connecting several units in parallel. This has the added benefit of allowing redundancy to be incorporated.



Direct support and availability, 24 hours a day

24 hour technical support is provided with every Control Techniques drive. Our support engineers have unrivalled experience to solve problems in a wide range of applications. For emergencies we are also able to despatch a wide range of drives from stock 24 hours a day.

Simplified asset management and telemetry

Control Techniques drives provide optional communication interfaces using a wide range of common protocols. Perhaps the most exciting is Ethernet with TCP/IP, allowing flexible, high bandwidth and low cost internet based infrastructure to be used for remote telemetry. Using the Ethernet option module, Control Techniques OPC server may be used to connect remotely to a SCADA interface; or our standard software tools may be used to monitor the drive, diagnose and solve problems.



Case study - Intelligent Pump Control



Control Techniques' IPC system has been installed at Seaton Sluice, near Whitley Bay in the UK. Previously the pumping station experienced regular blockages, often once a week, requiring maintenance visits. In over twelve months since installation, there have been no blockages at all. This application is comprised of two 160kW Unidrive SP drives, both fitted with the IPC system and communicating with each other via a high speed drive-to-drive network. Each drive controls a single pump and these are configured in duty and standby mode. The drives integrate with Northumbrian Water's existing telemetry system so that performance can be monitored remotely.



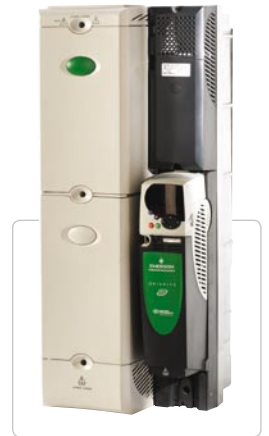
It's working very well; Seaton Sluice is a critical pumping station and any blockage means immediate call-out. Before refurbishment, operating costs were unacceptably high. Control Techniques came up with an extremely effective solution.

Bob Dixon, Framework Manager at Northumbrian Water

High performance drive products

Unidrive SP
0.37kW – 1.9MW
200V | 400V | 575V | 690V

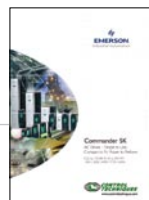
Unidrive SP is Control Techniques' flagship AC solutions drive, covering the complete power range and offering maximum onboard intelligence and communication flexibility.



For more information please refer to the Unidrive SP brochure

Commander SK
0.25kW – 132kW
100V | 200V | 400V | 575V | 690V

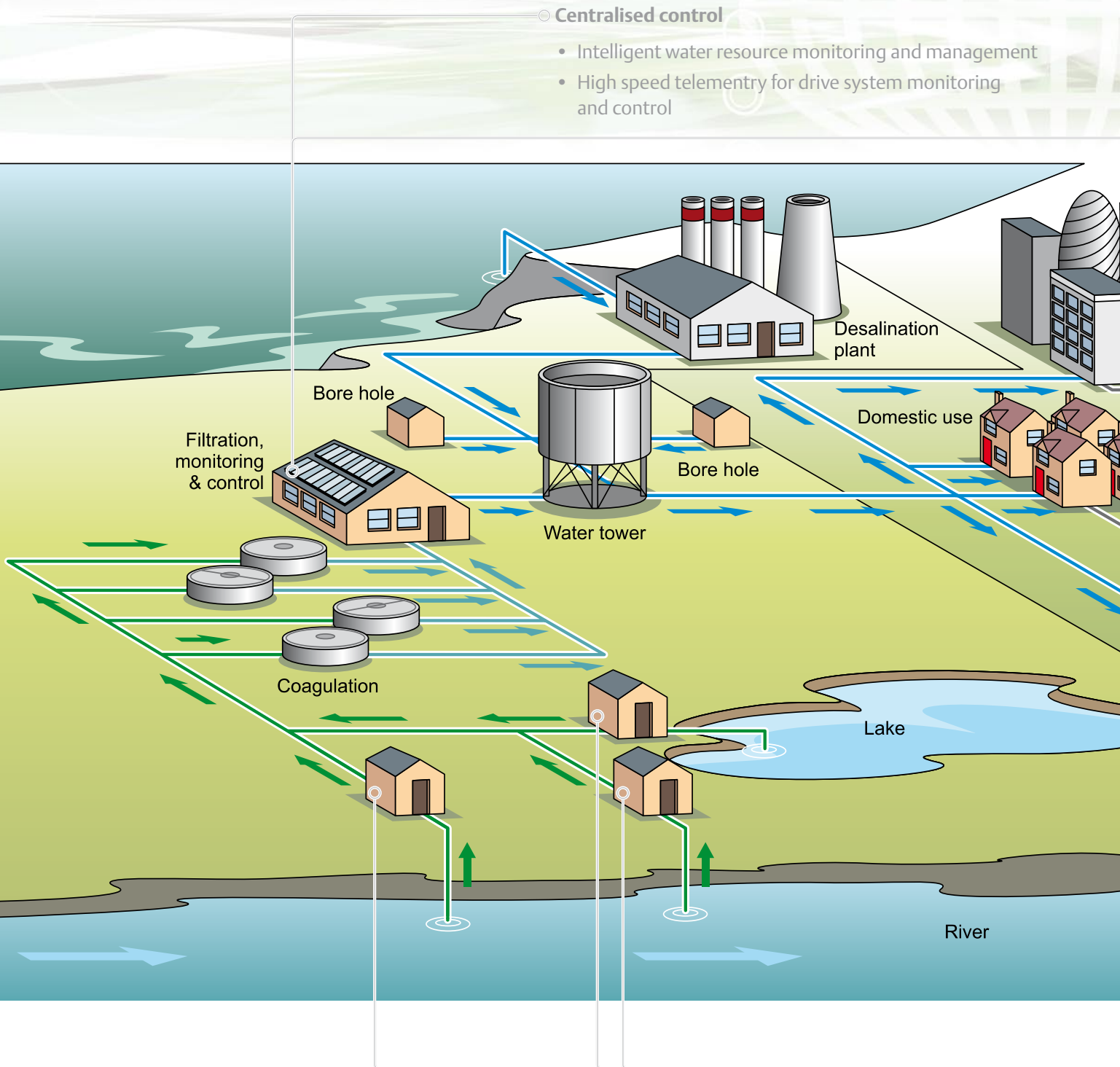
Commander SK is Control Techniques' simple, low cost drive solution covering a wide part of the power range. Commander SK provides a simple user interface with only 10 settings required for the majority of applications.



For more information please refer to the Commander SK brochure

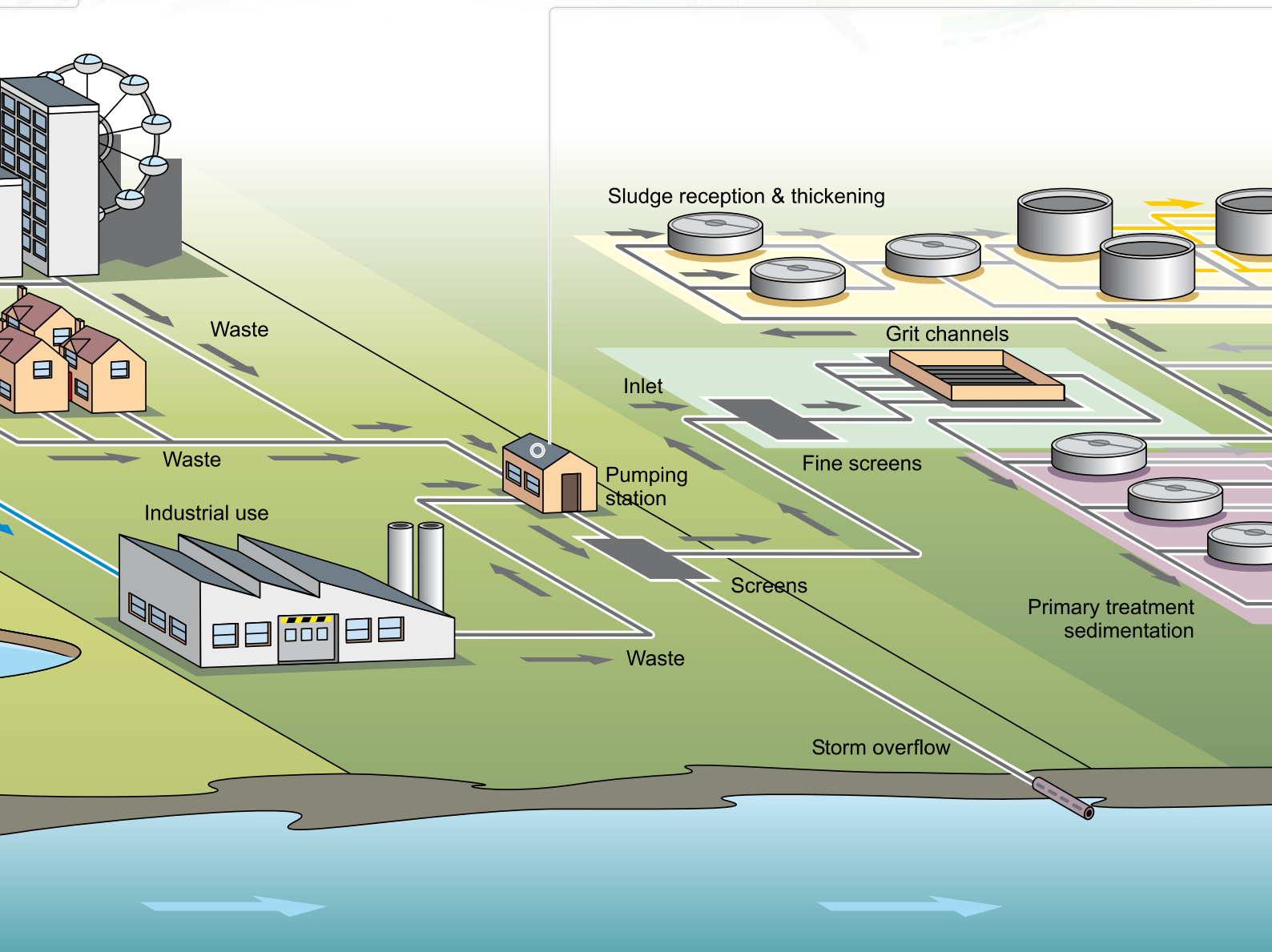
Clean and waste water pumping using drives

Control Techniques' variable speed drives may be used to control pumps, fans and other motors throughout the water cycle to improve energy efficiency and process control. The diagram illustrates some of areas where Control Techniques offers unique advantages.



Water treatment

- Variable speed drives providing energy efficient operation
- Variable flow enabling process optimisation
- Precise chemical dosing using variable speed drives

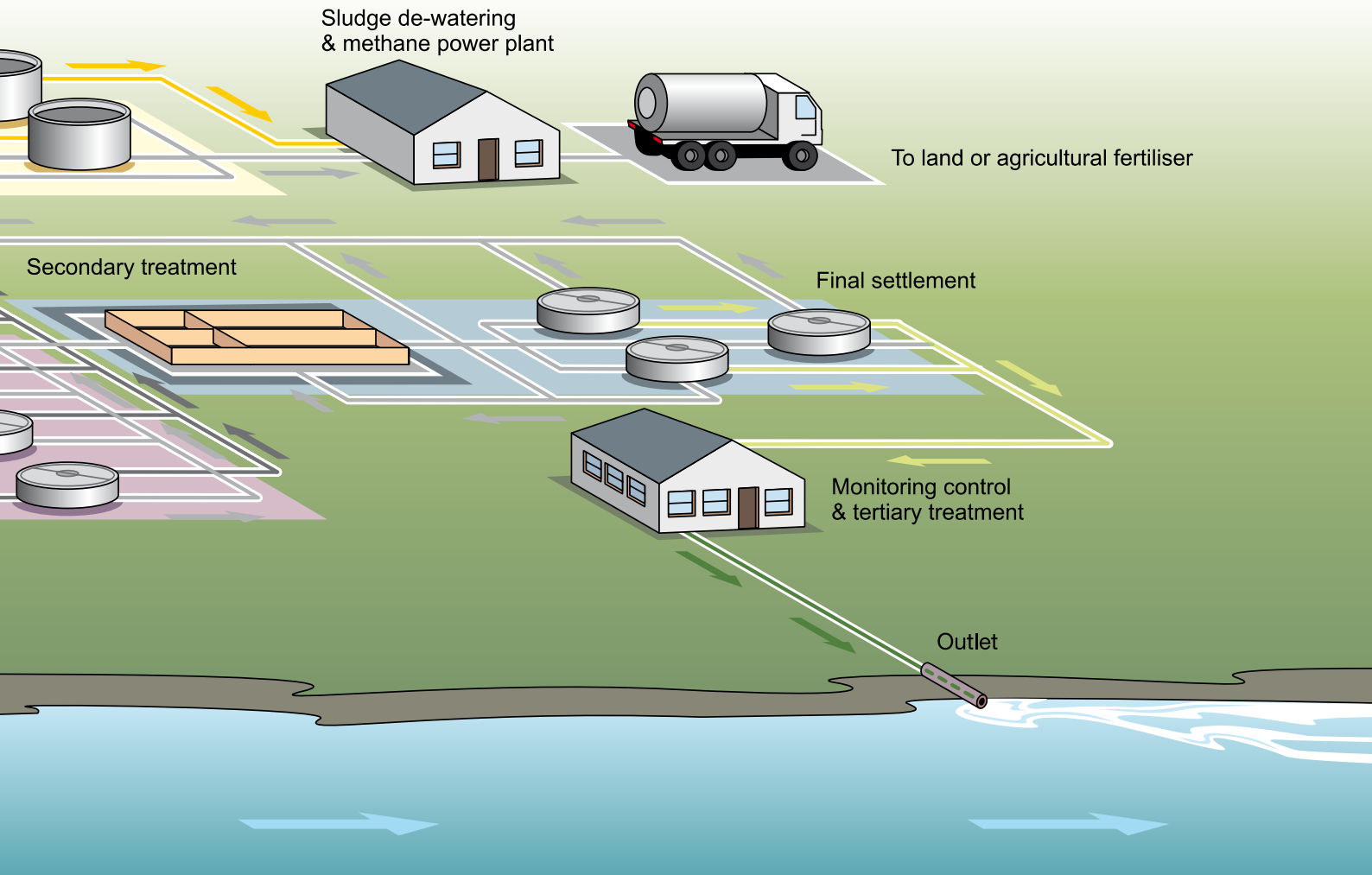


Water pumping stations

- Variable speed drives for energy efficient pumping
- TCP/IP based telemetry for network control and monitoring

Waste water pumping station

- Variable speed drives providing energy efficient operation
- Intelligent Pump Control (IPC) system detecting 'ragging' and preventing blockages
- TCP/IP based telemetry for remote control and monitoring



PC Software and Smartcard Tools for rapid commissioning

Control Techniques software suite makes it easier to access the drive's full feature set. It allows you to optimize the drive tuning, back-up the configuration and set-up a communications network. The software tools can connect using Ethernet, Serial, USB or Control Techniques' drive-to-drive network, CTNet.

CTSoft

CTSoft is a drive configuration tool for commissioning, optimising and monitoring Control Techniques drives. It allows you to:

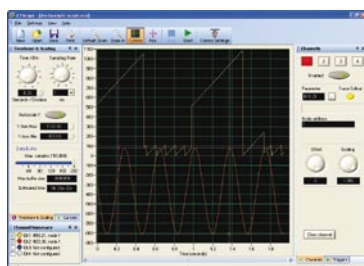


- Use the configuration wizards to commission your drive
- Read, save and load drive configuration settings
- Manage the drive's Smartcard data
- Visualise and modify the configuration with live animated diagrams

CTScope

CTScope is a full featured software oscilloscope for viewing and analysing changing values within the drive. The time base can be set to give high speed capture for tuning or for longer term trends.

The user interface is based on a traditional oscilloscope, making it familiar and friendly to all engineers across the globe.



CTOPCServer

CTOPCServer is an OPC compliant server which allows PCs to communicate with Control Techniques drives. The server supports communication using Ethernet, CTNet, RS485 and USB. OPC is a standard interface on SCADA packages and is widely supported within Microsoft products. The server is supplied free of charge and may be downloaded from www.controltechniques.com.

Smartcard



The Smartcard is a memory device that is supplied with every Unidrive SP. It can be used to back-up parameter sets and PLC programs and copy them from one drive to another.

- Parameter and program storage
- Simplify drive maintenance and commissioning
- Quick set-up for sequential build of machines
- Machine upgrades can be stored on a Smartcard and sent to the customer for installation

Control Techniques Drive & Application Centres

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