Data recording in effluent discharge processes
Proving effluent discharge is within legal limits

Eliminates need for manual data collection and satisfies legislative requirements
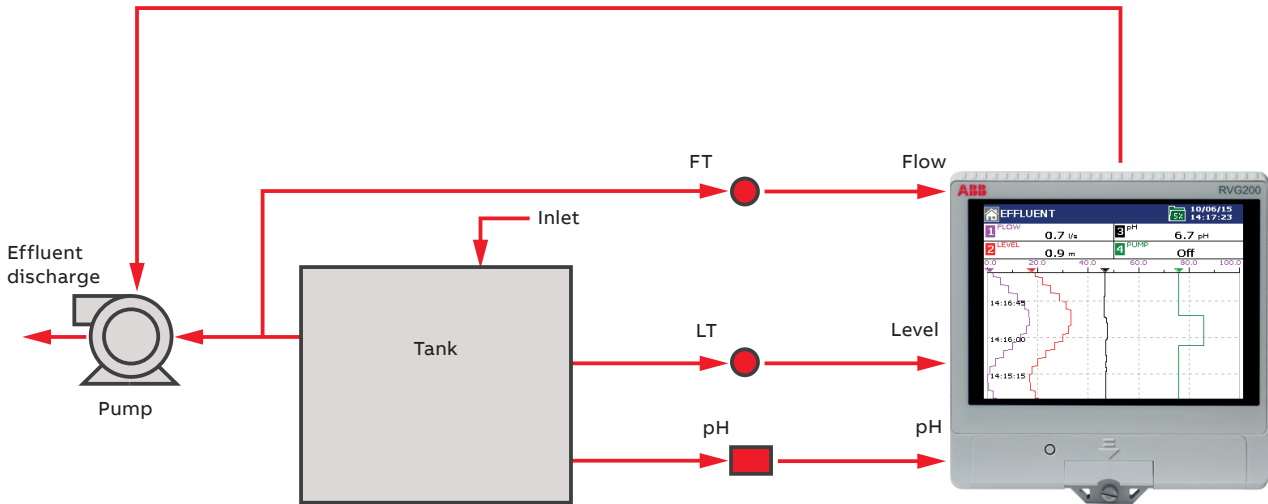
Measurement made easy

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Water industry

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Introduction

Discharge of liquid effluent to the environment is subject to strict legislation that obliges operators of industrial and municipal sites to record data on both water quantity, including levels of any chemicals present, and quantity, to ensure that emissions are within the required limits. Typically, as a minimum, instantaneous pH and flow is monitored and flow is also totalized. These variables must be recorded in a secure method so that, in the event of a downstream incident or an inspection, the original data can be easily retrieved and viewed. Depending on the type of discharge, other contaminants may also need to be measured.

ABB's ScreenMaster paperless recorders are widely used on effluent monitoring systems. They measure and display the process signals and store them in a secure, tamper-proof format. Their compact design ensures they are easier to validate than a large telemetry system. Advanced features allow for remote viewing using the webserver or notification by email if an alarm condition occurs. Once recorded, the data can then be transferred to remote servers where a long-term data storage procedure can be implemented. Using ABB's DataManager Pro software analysis tool, the original data can be verified as intact and analyzed on a PC.

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The process

Effluent monitoring overview

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What ABB Products are suitable?

ScreenMaster RVG200

- A 24 input touch screen recorder featuring swipe gesture control provides fast and intuitive operation. Process data (for example, flow, pH and level) is displayed clearly to the local operator through a variety of formats, including chart, bar graph and digital indicator.
- Dual flow totalizers per channel provide the flexibility to record both a continuous and resettable total for a single flow signal. Both totalizers are displayed clearly to the operator, together with the instantaneous flow rate.
- A totalizer log keeps a record of all totalizer occurrences. Whenever a totalizer is started, stopped or reset it is logged, together with the totalizer value at the time of the occurrence. The totalizer log is archived securely with other process data and can be reviewed using DataManager Pro software.

- Flow totalizers can be configured easily to reset automatically at specific intervals (for example, daily, weekly or monthly). When reset, the totalizer value is recorded in the totalizer log to provide a convenient history of flow totalizer values.
- When monitoring flow totals that must conform to strict limits, (for example, waste water discharge monitoring), the recorder's alarms can be configured to warn that a limit is approaching or has been reached. Also the relay output can be used to turn on / off the pump that discharges the effluent.
- All process data can be accessed remotely using ethernet communications. Additionally, the recorder's internal webserver, detailing the process status, can be viewed using a PC, tablet or smart phone and the flow totalizers can be remotely started, stopped and reset via the webserver.
- ABB also have other paperless recorders available to suit this application:
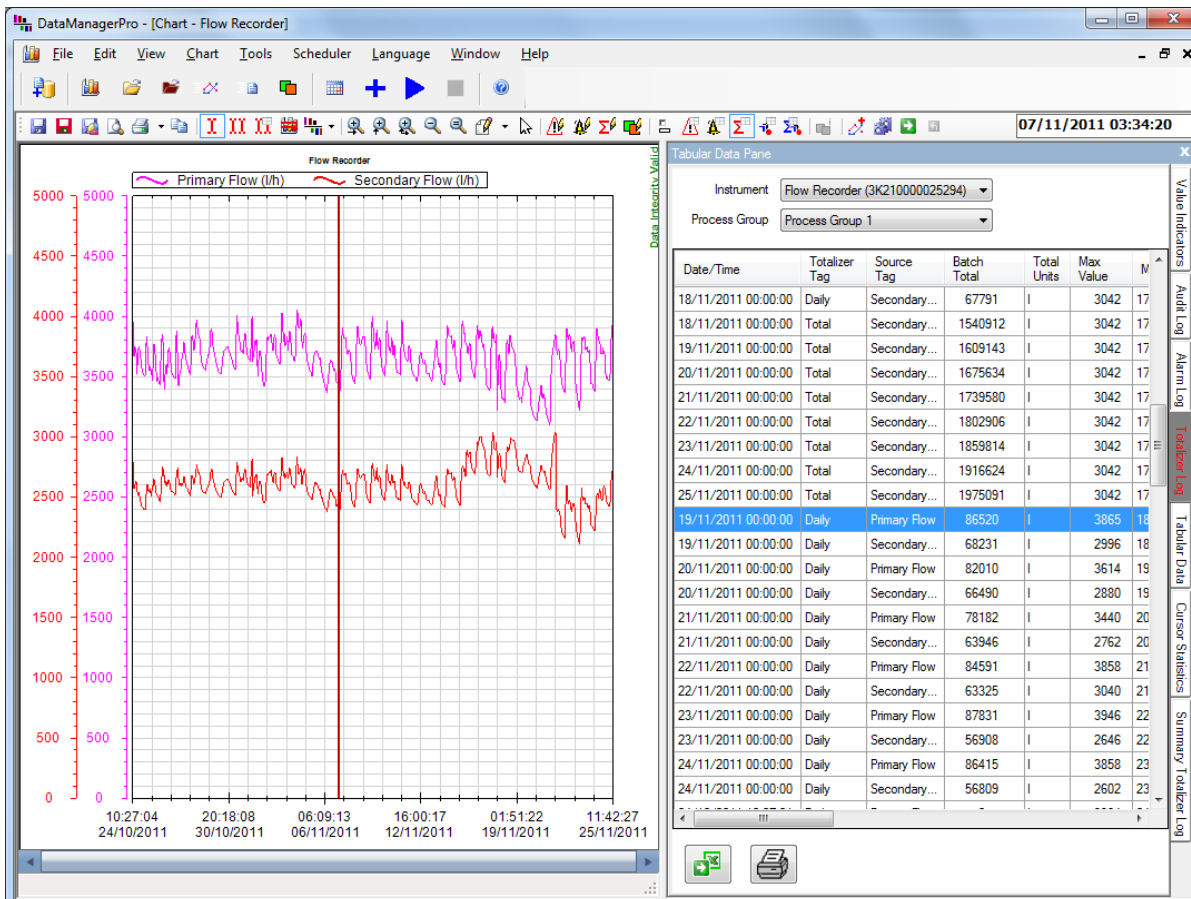 – SM500F (7 channel)

Totalizer log

DataManager Pro

DataManager Pro is an advanced process data management and analysis application used to store and review data archived by ScreenMaster paperless recorders:

- Functionality to annotate alarm, audit and totalizer logs on the chart enables quick and easy analysis.
- Ability to export the totalizer log information to Excel workbook format.
- Ability to compile graphical charts comparing multiple parameters, plus a dual cursor function enables operators to review data over specific periods of time and for specific recorders. Analysis function between the cursors show the minimum, maximum and average values.
- During data analysis, signatures and comments can be added securely to the chart – ideal for approval or verification purposes. Also secure data packages (that maintain the original data file integrity) can be created and passed to customers for verification/analysis.

DataManager Pro chart view

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