

OPTO

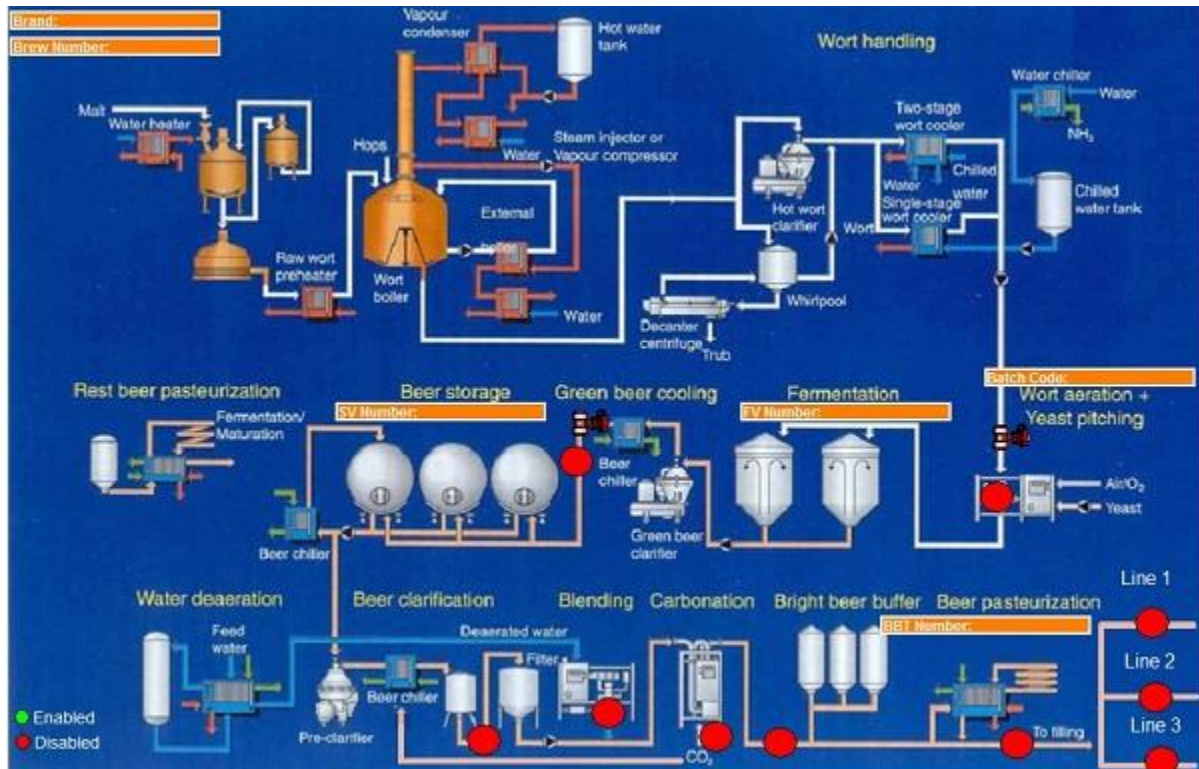
Controls (Pty) Ltd

QC Monitoring and Reporting System for Brewery DO Integration

There are several critical control points throughout the brewery. One critical measurement is dissolved oxygen (DO). DO is measured in water purification, fermentation, aging, filtration, and filling. Dissolved oxygen monitoring throughout various stages in the brewery is critical to quality control as well as increasing final product shelf life. Too much oxygen may affect the beer's shelf life. Too little oxygen in the fermentation stage will affect the yeast's effectiveness.

Opto Controls (Pty) Ltd has developed a Quality Control Monitoring and Reporting application which allows collecting information on DO Integration at strategic stages of the brewing process. The application saves data collected to a SQL Server database and appropriate reports are made available for the QC manager to pull out.

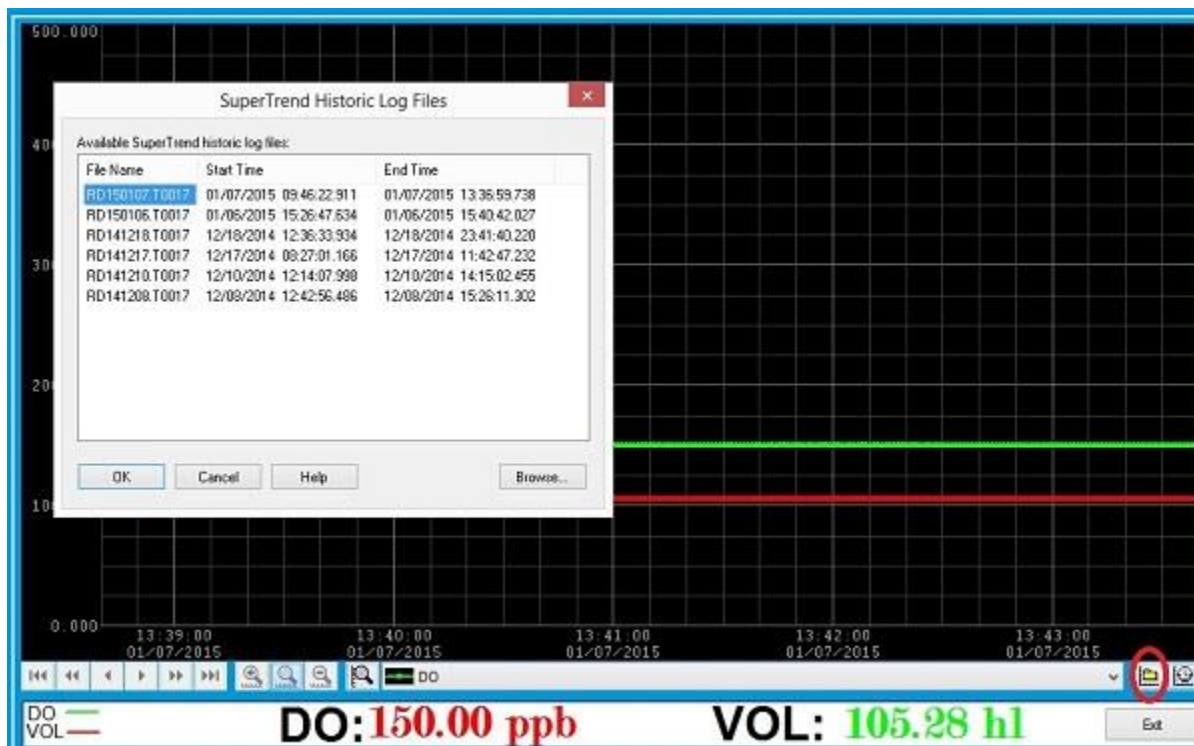
System Overview



Simple Configuration

| Batch Details | | DO Integration | |
|-------------------------------------|--------------------------|------------------------------------|--------------------------|
| Enter value and click update | | | |
| Brew Number: | <input type="text"/> | Update | Edit |
| Brand: | <input type="text"/> | Update | Edit |
| Batch Code: | <input type="text"/> | Update | |
| FV Number: | <input type="text"/> | Update | |
| SV Number: | <input type="text"/> | Update | |
| BBT Number: | <input type="text"/> | Update | |
| | | Flow trigger l/hr: 0.000 | |
| | | DO setpoint Upper limit/ppb: 0.000 | |
| | | DO setpoint Lower limit/ppb: 0.000 | |
| | | Batch start delay / sec: 0.000 | |
| Activate Units | | | |
| WORT | RACKING | CO2 | PRE-FILTER |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D-WATER | POST-FILTER | PRE-FILLER | LINE 1 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="button" value="EXIT"/> | | | |

Historic and Real Time Trends



Graphs



| Unit | Minimum/ppb | Maximum/ppb | Average/ppb | Standard Dev | Integrated DO |
|------------|-------------|-------------|-------------|--------------|---------------|
| Pre Filter | 107.000 | 152.000 | 130.689 | 11.406 | 128.893 |
| Rack | 107.000 | 145.000 | 117.116 | 15.974 | 117.115 |
| Wort | 120.000 | 134.000 | 133.222 | 3.222 | 133.222 |

