

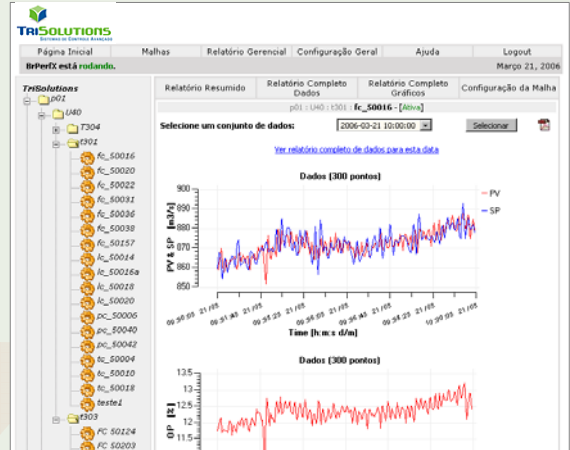


## Transforming Control Loop Performance Assessment into Economic Benefits

### Key Features:

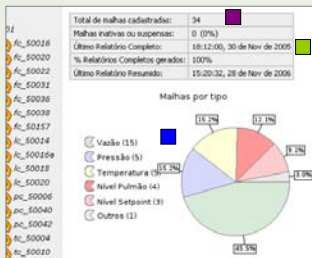
- Control loop on-line monitoring
- Web interface for reports and configuration
- Direct communication with the process by OPC or vendor specific interfaces
- Report notification by email
- The most advanced techniques for process performance assessment and diagnostics
- New, Innovative, and Conclusive Indices (much better than Harris's Index)
- More than 11 current real time applications (4 Refineries, 5 Gas Processing Units, 1 Offshore Platform, 1 Petrochemical Plant, and many others are being installed)

### Complete Reports - Graphs



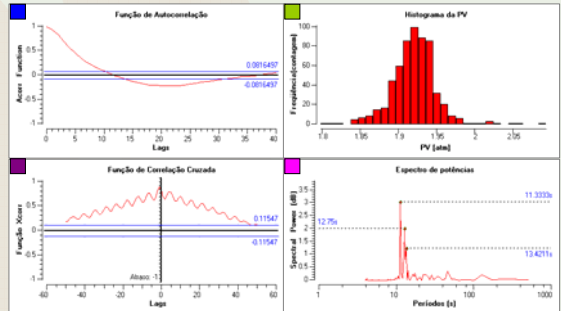
- Control loops explorer
- Report date
- Graph of process variable (PV) and set-point (SP) versus time
- Graph of control action (OP) versus time

### Current Status Summary



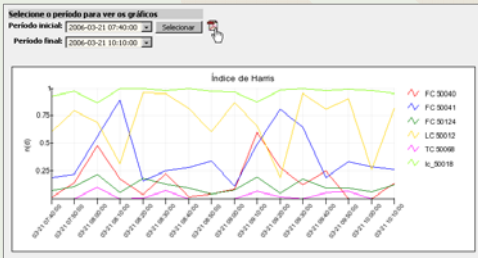
- Percentile of the different classes of control loop
- Number of registered loops
- Last complete report date

### Individual Control Loop Graphs



- Autocorrelation Function
- PV histogram
- Cross-correlation Function
- Spectral Analysis

### Complete Reports - Indices



Graphs showing the trends of the indices for every control loop selected

### Complete Reports - Indices

### Management Report

- Ranking for all numerical indices
- Save as pdf file

| Plantas | Unidade | Equipamento | Malha    | Harris | Percurso | Reversão | Manual | Oscilação | %Saturado | Pa |
|---------|---------|-------------|----------|--------|----------|----------|--------|-----------|-----------|----|
| p01     | U40     | I301        | fc_50016 | 0.158  | 3820.93  | 16.167   | 100    | 0         | 0         |    |
| p01     | U40     | I301        | fc_50022 | 0.847  | 7290.34  | 22.833   | 100    | 2         | 0         |    |
| p01     | U40     | I301        | pc_50042 | 0.492  | 25961.2  | 17.5     | 100    | 0         | 0         |    |
| p01     | U40     | I301        | fc_50014 | 0.477  | 2569.43  | 18.5     | 100    | 0         | 0         |    |



### Index of Plant Trends

Pond average of all control loops grades registered in each equipment or plant

|                                  |  |           |                        |
|----------------------------------|--|-----------|------------------------|
| Oscillation                      | Índice de Harris:                      | 0.48629   | Harris Index           |
|                                  | Oscilação:                             | 8         |                        |
| Valve Analysis                   | Estadísticas PV:                       |           |                        |
|                                  | Erro médio:                            | 0.470011  | Traditional Statistics |
|                                  | Erro percentual:                       | 0.0005948 |                        |
|                                  | IAE:                                   | 1688.17   |                        |
|                                  | PV Média:                              | 790.121   |                        |
| Média do erro absoluto:          | 4.68936                                |           |                        |
| Disturbance Amplification Factor | Análise de Válvulas:                   |           |                        |
|                                  | DP média:                              | 7.61576   | Operation Mode         |
|                                  | Saturação (%):                         | 100       |                        |
|                                  | Percurso de válvula (/dia):            | 6889.5    |                        |
| Reversão de válvula (%/ciclo):   | 38.6111                                |           |                        |
| Tuning Parameters                | Modo de Operação:                      |           |                        |
|                                  | Tempo em manual (%):                   | 100       | Operation Mode         |
|                                  | Tempo em automático (%):               | 0         |                        |
| Tempo em cascata (%):            | 0                                      |           |                        |
|                                  | Malhas de Nivel:                       |           |                        |
|                                  | Fator de ampliação de distúrbios:      | -         |                        |
|                                  | Parâmetros de sintonia do controlador: |           |                        |
|                                  | Parâmetro Proporcional:                | 0         | Tuning Parameters      |
|                                  | Parâmetro Integral:                    | 0         |                        |
|                                  | Parâmetro Derivativo:                  | 0         |                        |

