Description

ABB Totalflow has extensive experience working with gas producers and gatherers. Based on that experience, Totalflow has developed a simple "prepackaged" implementation of SCADAvantage™ for these applications. This system is pre-engineered to the most popular configurations and data displays.
Main overview screen with treeview and map (alarm summary at bottom of all screens)

The tree view provides easy and fast navigation from site to site. It expands to a detailed view of the fields and wells. This grouping is specified by the user during system installation or using WinCCU groups.

The alarm view automatically shows and sorts alarms. Alarms can be acknowledged and cleared.

Well sites, pod locations, leases, fields, etc. are located automatically on the map using Lat/Long or Township/Range information.

Placing the mouse pointer over a site will display information about the site in a fly-over bubble – this can be static information (e.g., Meter ID) or selected dynamic data (e.g., Flow Rate) – customer can change these variables via an ini file.

Off-the-shelf map linked to real time data. Can show or hide features such as roads, rivers, etc. Includes Lat/Long in the upper left corner.

Features:
- The initial system requires no system engineering and can be deployed quickly and inexpensively.
- Includes a full SCADAvantage™ license with all features – DVI polling engine, real-time relational database, trending, unlimited client access, etc.
- Supports Totalflow Flow Computers and Remote Terminal Units.
- Integrates with WinCCU to provide the audit trail (WinCCU priced separately).
- Includes three basic screens. (Note: These screens will vary somewhat, based on user chosen data detailed later in this document). In addition, all of the built-in SCADAvantage™ screens are available, including trend display and set point download.
- Includes one basic report – The Daily Production Report.
- Installation, configuration, and basic operator training at customer’s site (Cost depends on time spent, but is normally 3 to 5 days). Further training (e.g., System Administration Training) is available in Bartlesville.
- Fully expandable in the future.
- Kickoff meeting (normally by telephone) to review hardware and installation requirements.
- Pricing is based on the number of wells in the system. Additional wells can be added in various increments as required, and the license can be updated easily online.
- Predefined Alarming – Flow Rate < [value], SP < [value].
- User has the ability to define additional alarms, new users, and assign rights to user ID / pass-word.
- Proven Map, Tabbed, and Treeview navigation tools.
- Can utilize WinCCU Groups for Treeview and Overview Definition.
Advantages over WinCCU

- Advanced navigation tools, such as the map and tree view
- Overview Display Grid – Comparative information on multiple wells on the same Display
- Sophisticated Trending
- Comprehensive Alarming
- Client / Server Architecture
- SCADA Advantage™ options can be added to an existing system at any time

Screens

The Entry Level System comes with three predefined Screens: Map Overview, Summary, and Well / Meter Detail (see displays in this datasheet). These screens can adjust to a limited variation of display data.

Summary screen – for a quick view of multiple wells/meters

The wells and meters are grouped by field, lease, pumper, etc. Data displayed is chosen by the user during installation from a predefined list, which is discussed later in this document.

Treeview and Alarmview are on each display screen

Tab to different views

Summary data chosen by the customer from a predefined list

Meter IDs - Click on one of these buttons and go to the detail screen
SCADAvantage™ system for gas production & gathering
System software products

Report

This Basic Report is provided with the Entry Level system. The Columns showing Casing Pressure, Tubing Pressure, and Water only appear if these values are available through the Totalflow EFM and are in the SCADAvantage™ Database. The System Administrator supplies the Company name for this report. Y-day is the Volume for the most recent day from contract hour to contract hour. YY-Day Volume is the full day proceeding.

Well/Meter detail screen

Buttons
1. Fast Scan – scan now
2. Quick Trend – build trend on the fly
3. Select Trend – choose predefined trend
4. Data Grid – all the data on the screen displayed in grid format (can be printed or exported into a CSV file)

Memo Pad—operator enters notes for a site (e.g. site-down, waiting on parts, should be up Friday) Notes are date and time stamped and include the operator’s ID—the notes are stored in the database along with the data/time stamp and operator ID and can be included in reports or site logs

Benefits

Report format has the
1. AGA audit trail information
2. Daily Volume
3. Yesterday’s Volume
4. Casing and Tubing Pressures (where available)
5. Water production data (where available)

Client / Server Design – Clients can be anywhere on a TCP/IP network (corporate networks and Internet)
Remote support is available through the Internet where appropriate access is available.

Daily Production Report

Date: June 12, 2006

<table>
<thead>
<tr>
<th>Well-ID</th>
<th>Contract</th>
<th>Gas Volume (MCF)</th>
<th>Avg</th>
<th>Y-Day</th>
<th>YY-Day</th>
<th>Diff</th>
<th>DP SP</th>
<th>Temp deg F</th>
<th>Casing PSIA</th>
<th>Tubing PSIA</th>
<th>Water Barrels</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-521</td>
<td>8</td>
<td>845</td>
<td>834</td>
<td>11</td>
<td>10</td>
<td>245</td>
<td>94</td>
<td>225</td>
<td>211</td>
<td>18</td>
<td>0</td>
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<td>12-522</td>
<td>8</td>
<td>774</td>
<td>790</td>
<td>-16</td>
<td>21</td>
<td>270</td>
<td>91</td>
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<td>151</td>
<td>21</td>
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<td>406</td>
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<td>266</td>
<td>93</td>
<td>396</td>
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<td>98</td>
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<td>22-523</td>
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<tr>
<td>22-525</td>
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<td>396</td>
<td>388</td>
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<td>93</td>
<td>257</td>
<td>243</td>
<td>8</td>
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<td>22-526</td>
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<td>1,054</td>
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<td>60</td>
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<td>202</td>
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<td>12</td>
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<td>Jones-1</td>
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<td>359</td>
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<td>Jones-3</td>
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<td>22</td>
<td>34</td>
<td>79</td>
<td>362</td>
<td>348</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Tubing Pressure, and Water only appear if these values are available through the Totalflow EFM and are in the SCADAvantage™ Database. The System Administrator supplies the Company name for this report. Y-day is the Volume for the most recent day from contract hour to contract hour. YY-Day Volume is the full day proceeding.
Display data

The SCADAvantage™ Entry-level System can read and display data points from the Totalflow devices. These data values can be displayed in the Map Flyovers, Summary Displays, and Trends. Data available for these displays are:

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast, easy implementation</td>
<td>Low initial cost</td>
</tr>
<tr>
<td>User has ability to add new well sites</td>
<td>Low ongoing cost of ownership</td>
</tr>
<tr>
<td>to the system easily (less than 10</td>
<td></td>
</tr>
<tr>
<td>minutes per site)</td>
<td></td>
</tr>
<tr>
<td>New sites automatically are part of:</td>
<td>SCADA specialist not required for adding new site</td>
</tr>
<tr>
<td>– Map display</td>
<td></td>
</tr>
<tr>
<td>– Summary screen</td>
<td></td>
</tr>
<tr>
<td>– Detail screen</td>
<td></td>
</tr>
<tr>
<td>– Database</td>
<td></td>
</tr>
<tr>
<td>– I/O subsystem (automatically placed on scan)</td>
<td></td>
</tr>
<tr>
<td>– Report,</td>
<td></td>
</tr>
<tr>
<td>– Pumper’s area of responsibility</td>
<td></td>
</tr>
<tr>
<td>(user ID and password set automatically)</td>
<td></td>
</tr>
<tr>
<td>– Tree view</td>
<td></td>
</tr>
<tr>
<td>Comprehensive alarming</td>
<td>Reduce downtime and increase production</td>
</tr>
<tr>
<td>Powerful trending tools</td>
<td>Analyze operations, find problems, increase</td>
</tr>
<tr>
<td>– Proven map, tabbed, and tree view</td>
<td>production</td>
</tr>
<tr>
<td>navigation tools</td>
<td></td>
</tr>
<tr>
<td>– Utilizes WinCCU software for audit</td>
<td>Easy-to-use, minimal operator training required</td>
</tr>
<tr>
<td>tail data (priced separately)</td>
<td></td>
</tr>
</tbody>
</table>

- **Fixed data** – Predefined on the Screens and Report as appropriate. This includes:
  - General Meter and Site Information
  - Device Date and Time at last communication
  - Host communication status
  - Computer Date and Time of the last successful communication
  - Battery Voltage
  - Charger Voltage
  - Meter Identification Information:
    - Meter name (or location)
    - Meter ID
  - SCADA specialist not required for adding new site

- **Customer Chosen Data:**
  - Standard AGA Data is available, including
    - Current Line pressure (AP/SP)
    - Current Differential pressure (DP)
    - Current Flowing temperature (T)
    - Current Flow rate (FR)
    - Today’s volume
    - Yesterday’s volume
    - Day Before Yesterday’s Volume
    - Pipe diameter
    - Orifice diameter
    - Accumulated volume
    - Contract hour
  - Energy Data, including
    - Yesterday’s Energy
    - Today’s Energy
  - Other typical data to be displayed (if present in the device) include:
    - Water flow rate
    - Water volume today
    - Water volume previous day
    - Casing pressure
    - Tubing pressure
**Engineered systems options**

These options require an Engineered Solution and thus are not part of the Entry Level System. Engineered Solutions require significantly more labor to produce, and this will affect the price considerably.

These options provide much greater functionality in a SCADAvantage™ system and should be considered either in the original system configuration or as additions to a system after it has been installed.
Example engineered options

1. EFM Tool – Add Audit trail capability to a SCADAvantage™ system. Supports multiple protocols such as Totalflow Standard, ROC, ROC Plus, Enron Modbus.

2. Pump Control with Set point capability (e.g., UMC 22) – with Display Screen (see next page)

3. Compressor Stations and Compressors – Graphic displays can model a site with multiple Compressors, fuel, input, and discharge meters, PLCs, etc., and can also represent a process by using a schematic.

4. Alarm Call-out / call-in – Will call the required phone number when there is a specified alarm. Provides for escalation if there is no answer. Alternatively, it can send an email or page. An alarm code allows the recipient with proper authorization to acknowledge the alarm over the phone. It also provides for a user with proper authorization to call-in and hear current values reported.

5. Query Tool (see opposite) – This tool provides filters for the navigation display below it. Since it can be easily changed as needed and query definitions can be saved, it is a valuable tool for the operator. A reporting feature is also available as an addition to the Query Tool. The query tool is used to specify a group of wells, then a date range can be specified at the report tab. Reports can be run, saved, and retrieved from the report tab.

6. Standard SCADAvantage™ Report Functionality – A battery of reports can be created easily using this SCADAvantage™ feature. The HMI can also be modified to allow the reports to be called from with it.

7. Non-Totalflow EFMs, RTUs, PLCs, etc. – Support for multiple protocols over the same serial port or master radio.
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