ABB MEASUREMENT & ANALYTICS | DATA SHEET

Database files

System software products

Description

The Totalflow Archive files (Archive) and Long Term Database (LTDB) provide a continuation of the EFM Audit Trail that begins in the Totalflow flow computers. The Totalflow Universal Import format (an XML based format) provides a means of importing data from other EFMs, RTUs, or Circular Charts into the Archive.

The EFM Tool takes this one step further; it reads data directly from supported devices and imports it automatically into the Archive. It can read EFM data from many different vendors' devices and can use a single communication link (e.g., serial port, master radio) for multiple protocols.

Once in the Archive, EFM data can be viewed and exported into a variety of formats including the LTDB. From either the Archive or LTDB, the user can view the data, include it in reports, or export it to other accounting systems and formats. In the LTDB, the user can also edit the data, preserving the Audit Trail in the process.

Totalflow has extensive experience handling Audit Trail data with its WinCCU software. The EFM tool builds on and extends this data handling capability. The EFM Tool Archive matches the WinCCU Archive formats so that it can be processed by the WinCCU software if desired. The LTDB also matches the WinCCU LTDB formats for the same reason.

Features

The EFM Tool software is structured around flexible data and configuration storage. Note that data provided for different devices and vendors may vary, depending on what data is actually available from that device.

- Historical / Audit Trail Gas Flow and Analysis Data
- Archive Format
- Long Term Database Tables
- Configuration Data
- Trend Data

Archive
Audit trail data is collected from an EFM and / or an analyzer, organized, and stored into the Archive. Data in the Archive is kept unchanged in a Totalflow proprietary binary file format. Data can be stored into this file, but cannot be altered once it is there, and cannot be overwritten later with newer data (changes are only through the LTDB which provides an Audit trail). Totalflow does not publish the format of this file, but does provide various ways of extracting data, including:

- Converting the data into LTDB tables
- Preparing reports and standard file outputs
- Sending e-mail reports
- Using the Totalflow Archival Interface (TAI) Tool- kit Programming Interface to programmatically read data from this file for custom applications.
- Export to a file in the Totalflow Universal (XML) Import format.
- Verifying the integrity of the Archive

Data can be added to the Archive through the normal EFM Tool collect or imported using the Totalflow Universal (XML) Import Format.

The Import Format is designed to allow for EFM data coming from sources other than Totalflow EFMs to be imported into the EFM Tool Archive. Once in the Archive, the data is available for all of the same functions as Totalflow data. This capability is intended to allow importing flow computer data from charts or non-Totalflow EFMs into the Archive.

The system also maintains the EFM's Event Log as part of the Audit Trail data. This log records any changes made to the configuration of the device so that the volume calculations can be reproduced. This log is part of the Archive.

Long Term Database (LTDB)
The LTDB is the working storage for Audit Trail data. Data is converted from the Archive into the LTDB tables for editing and subsequent processing, including Event Log data. Although the EFM Tool provides for the reporting of Archive data, most users prefer to edit their data first to correct the entries – e.g., failure to enter an orifice change at the device, Analysis data update from lab analysis results. The corrected data is then exported to other systems, trended on the screen, or included in reports.

Edits made in the data are recorded in the LTDB Event Log. The Audit Trail can be verified by reprocessing the Archive data with the updated Event Log entries. The result will be the current LTDB.

Configuration Database
The EFM Tool relies on the SCADAvantage Real Time Relational Database (RTRDB) for Device configuration Data. This data is used primarily for communicating with devices. The data in this database specifies baud rate, link establishment time, parity, communication, media, type of device, various delays, I/O port used, location of the I/O port, IP addresses, and other communication considerations. The data stored may differ for various devices and protocols, depending on what is available for that device.

Trend Database
Totalflow devices have the capability to collect trend data at the site. The trend package is very flexible, allowing multiple trends to be stored simultaneously. These trends can have different time bases, or be triggered by different events, or simply be stored data from other applications running in the device.

The EFM Tool will collect these trends and organize them into permanent storage in the LTDB so that they don't overlap and so they maintain their distinctive data relationships and trend files.

Trend data can also be read from other devices when supported. This data also goes into the Trend Database. Data in the trend Database can be displayed on a graph, or included in reports.

Benefits

These databases provide security for the data and flexibility for the user. The Archive preserves the original data for the Audit Trail. Backing up this file regularly will insure that this Audit Trail can be reproduced if necessary.

The EFM Tool databases are stored in Microsoft SQL Server. SQL Server is a high performance multi-user database capable of providing for either local or corporate wide needs, or both. The data in the SQL server can be accessed with standard SQL statements. This allows data to be transferred to corporate databases or applications such as: Management, Accounting, Engineering, or Marketing, for further processing or action. Other applications such as well analysis packages can also access this data through SQL statements.

The database design improves the maintainability of the data and the supporting software. This improves the reliability of the system and maintains a defensible Audit Trail.

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