



# Twister Software

Multi-platform data collection and processing software



- **high-quality universal product**
- **flexible modular structure**
- **highly scalable performance**

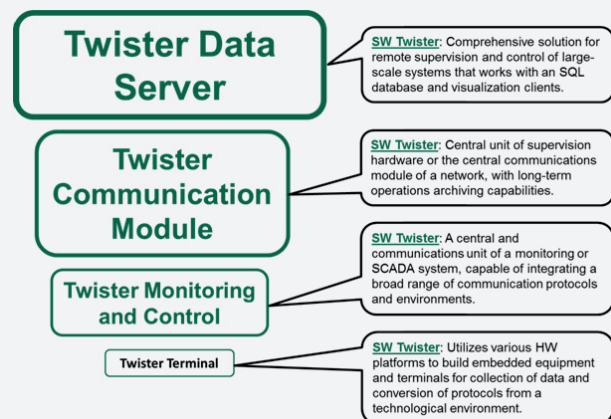
Twister is application software for the Linux and Windows operating systems, that is used in applications for the on-line collection, transmission and processing of data in telemetry, computer and mobile data networks. Thanks to highly scalable performance, it can be used in small terminals for data collection (RTU) and specialized technological monitors built on various hardware platforms. It is also very suitable for central communication network nodes and large data servers where along with long-term data archiving and visualization clients it serves as a base for full-scale SCADA systems.

## → Basic Characteristics

- support for a broad range of hardware platforms permits versatile application in hardware at various levels of data and telemetry networks. For each type of hardware, a specific TECHSYS Linux distribution is created that integrates the application module environment
- on communication nodes and data servers, Twister can be operated under various types of Linux or Windows server operating systems according to the customer's wishes
- modular structure of Twister software permits the creation of applications customized to the customer's requirements and easy addition of new functions
- Twister software supports a broad range of communication protocols (serial communication, communication in various computer networks, database communication)
- convenient diagnostics facilitate the effective resolution of system and application problems without the need for physical access to hardware. Communication diagnostics, which include recording and simulation, are especially well-designed
- parameter setting and remote monitoring of equipment, as well as long-term storage administration and additional functions in SQL are addressed through a user-friendly interface that can run on Windows and Linux workstations
- respects current standards and cyber-security requirements (encryption, user authorization and authentication).

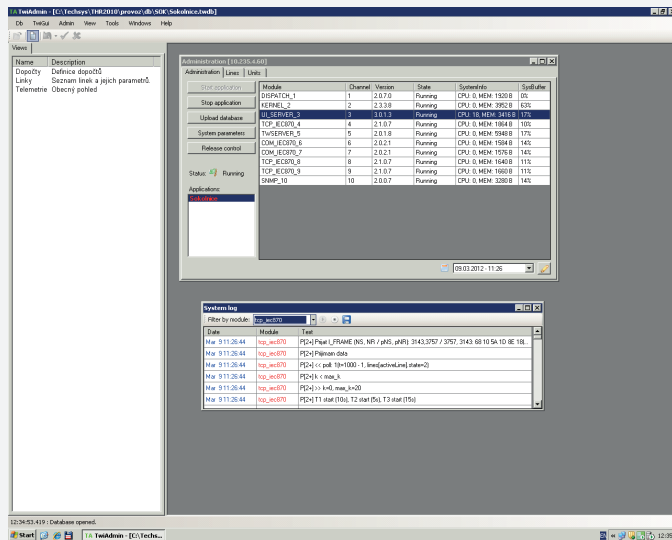
## → Properties

- flexible connection and integration of telemetry data from communications environments: classical serial communication, industrial Ethernet, private digital radio networks, computer network and SQL database, public mobile networks, the Internet
- broad range of functions for real-time data processing: limit checks, calculations, value prediction, alarm assessment and administration
- data archiving in an SQL server: recording of immediate values, recording of time slices, creation of change logs, exception logging, addition of comment text
- subsequent data processing in an SQL database: long term history retention, aggregation of values using math and expert functions, calculations using time series of archived values, application models that facilitate searching and sorting data
- presentation of data over an Intranet/the Internet through the TechSight smart client: display of application schematics with live values, displaying data series and slices in tables, displaying data series through graphs, comparison of multiple data series, the ability to enter comment text, remote control, print and export of user reports
- Twister software is entirely a TECHSYS product, and its modular structure makes it easy to add custom functions and new communication protocols.



## → Communication Protocols

- standard serial communication can be connected directly to COM ports or special hardware, such as serial device server, can be used. Primary supported serial protocols: IEC 60870-5-101, Modbus RTU, RP 570, TG 809, SSI
- simple network protocols that today serve for most communication can be used over regular Ethernet, industrial Ethernet, as well as over the Internet. Primary supported protocols: IEC 60870-5-104, Modbus TCP, DNP 3.0 TCP, SNMP, IEC 62056-21 DLMS, IEEE c37.118
- object-oriented network protocols are used to communicate with hardware represented by a virtualized model. Twister for example supports the IEC 60870-6 TASE.2, IEC 61850 and IEC62056-7 DLMS/COSEM standards
- database communication is supported through the ODBC interface, through which data can be exchanged with SQL database servers from various vendors

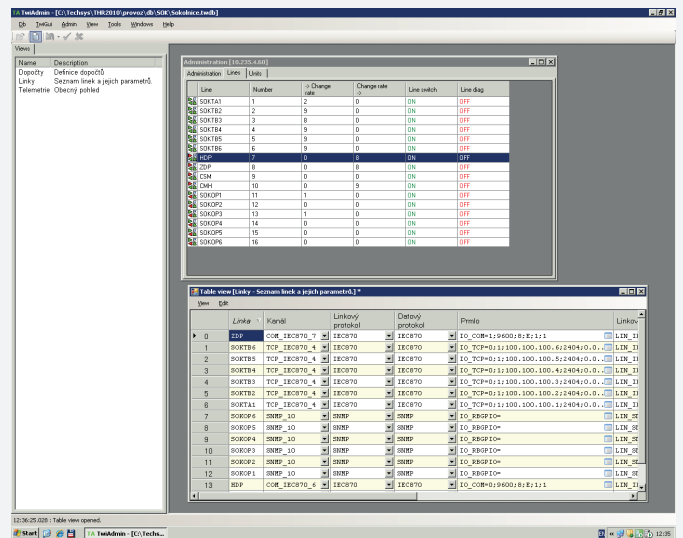


Above an example of channel administration, below a system log

## → Remote Supervision and Parametrization

The TechAdmin product is used for remote supervision of hardware running Twister software. It can also be used to remotely perform system and application diagnostics. System diagnostics for example include information of system resource used by individual modules, and creation of event logs. A typical example of application diagnostics is monitoring communication buffer use, packet transmission counters, the number of changes in data points and error counters for individual communication links. Data traffic on individual communication links can be monitored directly by outputting telegrams and data points. It can also be recorded to disk for later off-line analysis of occurrences and simulation of application operation in a test environment.

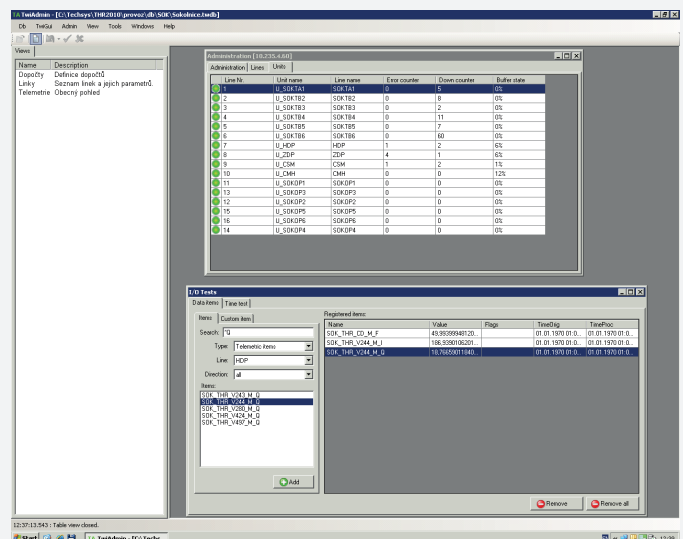
An object-oriented approach is used to create the database. The database editor is part of the PRO version of the TechAdmin product. A broad range of editing tools are supplemented by data import and export tools that permit data exchange with database editors from surrounding systems at the file level.



Above on-line monitoring of communication units, below monitoring of data point values

## → Supported Hardware Platforms

- industrial computers for implementation of special embedded applications for demanding environments
- large Linux and Windows servers for data node, data concentrator and SCADA type applications
- virtual servers operated on the VMware platform



Above monitoring of link status, below on-line editing of their parameters

## → SQL Databases

Another function of an application with Twister software is long-term archiving (LTA) of data in an SQL database. It is a set of tables and procedures that permit the efficient processing of large amounts of data. Processing thousands of value changes per second is common, with archiving depth limited only by media capacity. In a Linux environment the database engine most often used for this purpose is PostgreSQL, while under Windows it is MS SQL Server.

