WinTR-AS® for Windows® XP / Vista / Windows® 7

WinTR-AS® is the result of our long lasting know-how in software development for the handling of digital recorder measuring systems and possibilities provided by modern operating systems like Windows® XP / Vista / Windows® 7. Now you are able to acquire, evaluate and process measured data within a standardized user-friendly operating and control interface. All saved data is managed with an integrated dBase®-compatible database. Because of this user has multiple opportunities of further data processing, e.g. it is now possible to generate reports using the WinTR-AS® functions or to use applications like Microsoft Excel®.

features

- 32-Bit software
- Standardized intuitive user interface
- Context-sensitive help system
- Multi-Threaded (parallel running processes within the application)
- Integrated database (dBase® compatible)
- Impulse evaluation acc. to IEC 60 and 1083 and evaluation of mathematical operation results of different channels
- Formula-parser for generation of synthetic shapes
- Mathematical operation
- Macro-language for own evaluation procedures
- Automatic test-sequences (configurable)
- Remote control with OLE-automation
- Remote access via modem
- Configurable user interface
- Multilingual user texts (online switchable)
- Multilingual protocol-output with preview
- Import of ASCII- and IEC-TDG-curves
- Possible integration in a network
- Simple data transfer using the clipboard of Windows® (metafile format)
- Support of color prints
- Integrated hardware-diagnostics
- Extensive database backup functions

Database-concept controls all tests performed:

Meas. system 1 - database
complete database with all measured data
central access provided by network server

Meas. system 2 - database

Meas. system n - database

intuitive user interface

The user interface of WinTRAS is conform to the standards of Windows® and provides all usual controls of a modern windows application:

- Pull-down menu
- Toolbar for the most important functions with online hints for each button
- Context-sensitive help system
- Statusbar for messages

- Subordinated windows for the output of wave shapes and evaluation results which can be arranged any way in the main window of the application
- Intuitive user dialogues for settings, evaluations, database- and file operations

Additional you have the possibility to activate a user menu panel, controlled by the function keys of the keyboard. This menu provides also important functions of the application, similar to the toolbar. You can change the properties of the user interface using the "options" menu of the menu bar.
**WinTR-AS® for Windows® XP / Vista / Windows® 7**

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**Integrated Database**

All saved records and evaluation results of WinTRAS are managed in a dBase®-compatible integrated database. The data is organized in projects, which are identified by a definitely project number. The database structure offers a lot of advantages regarding data backup and further processing of the data:

- central backup using a network
- easy data transfer of large data quantity between different measuring systems or workstations using a network
- easy data access for additional workstations for evaluation, analysis, documentation etc.

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**Easy Digital Recorder Control**

All necessary settings for the operation of the digital recorder are made by userfriendly dialogue windows. All dialogues show the actual settings in form of tables for better orientation. Each row of a table represents a channel.

The preview area on the upper right side shows online the effects of changes of one of the parameters delay, measuring range, offset and trigger.

Of course you have the possibility to save all settings.

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**Multiple Display View Options**

The display view dialogue allows the user to modify the appearance of the curve window. All settings are shown as well in form of a table with the parameters of one channel in a row. If specific channels are not needed, they can be turned off.

As only displayed channels are saved to the database if the function “save curves” is activated, this option allows you to reduce the quantity of stored data. Thus all output and save operations work with the principle “what you see is what you get”.

The hardcopy function produces a printout of the actual displayed screen using the maximum number of

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**Graphic Export using the Clipboard of Windows®**

The export of WinTRAS graphics is a very useful feature if you have to create documentations. The actual content of the curve window and the status window will be transformed in a metafile and this will be finally copied to the clipboard.

Please take note that the metafile format offers vectorgraphic. That means easy positioning and scaling of the graphic in the further processing.

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**automatic evaluation**

Another indication for the efficiency of WinTRAS is the automatic evaluation. The user has the possibility to select an evaluation mode from a predefined set for each channel. This set contains for example impulse evaluations (LI/SI) according to IEC 60 and 1083. The user has the choice between manual and automatic evaluation. Additional mathematical operations with channels are allowed. Thus this feature is realized with an integrated formula parser, you have also the possibility to create synthetic wave shapes. Please take note that 80 channels are available for evaluations and channel operations.

**integrated data backup tools**

WinTRAS provides also extensive tools for comfortable data backup of complete projects or single measured data. The following functions are available:

- backup
- restore
- delete

You are able to determine any lokal drive or any network drive as destination for the data backup. Additional every save action of the user will force an automatic data backup of all database tables.

**automatic protocol generation**

The following parameters are selectable:

- protocol language
- number of graphics per page (1, 2, 4, 8)
- graphic printout with or without evaluation results

If all parameters are selected, a preview of the actual protocol will be started. The preview provides a visual check of the protocol, before the printjob is started. All graphics are created and printed as vectorgraphic.

Furthermore, the user has the possibility to save a completed protocol and reload it later for printing. Finally you are able to implement your own company logo at the protocol header for individual protocol design.

All Windows® supported printers are of course accepted by WinTRAS.

**additional software packages**

We offer further software packages in combination with the WinTR-AS® main application. This allows you to choose a specific software-bundle depending on your measuring task:

- Automatic Calibration acc. to IEC 1083
- Calibration of H.V. dividers acc. to IEC 60
- Trafo-Test with Compare-Function
- Transfer-Function and Coherence-Function
- Tolerance-Band-Method
- Frequency Response Analysis
- Tap Change Operation Sequence Test
- Quality-Control software
Makro Editor for automatic evaluation of custom-defined expressions

Easy input of formulas and rules for their automatic calculation immediately after each new record, comprising
- Peak values of analogue lapses, e.g. Torque Moment, Current, Voltage, ...
- Contact Events recorded into Digital Measuring Channels
- Energy by Integration of Voltage and Current lapse during arrester tests
- Difference shape of individual channels
- Arithmetic Operations with two Channels before Evaluation

OLE / DCOM / ActiveX - Interface WinTR-AS®

For automatic control of recorder functions by custom programs

Programming Examples in Delphi / C++
- functions with their names; input-parameters / output-parameters with Delphi-type, in brackets
- C-type; similar parameters types are available in basic or other programming languages

```
variant IRemoteControl:: StartEvaluation ()
input nothing
output: none
This function starts evaluation. All current activated channels for evaluation will be evaluated with there current parameters.
```

```
variant IRemoteControl:: StartRecord ()
input nothing
output: none
This function starts a record (analogue to call of ALT-A directly in WinTRAS)
```
Combined Voltage Test with AC and LI

This picture shows a combined voltage test with power frequency voltage AC with 143.7 kV peak and lightning impulse voltage LI with –498.5 kV peak.

With help of the Makro-Editor integrated in the WinTRAS-Software additional test parameters shown under RESULTS can be calculated automatically after recording:

- the AC voltage at the instant of the LI peak, \( V_{ac,peak} \)
- the voltage drop \( \Delta V \) of the AC voltage peak with respect to \( V_{ac,peak} \)
- the test voltage \( V_{test} \) as the difference of \( V_{ac,peak} \) and \( V_{ac,peak} \)
- the time difference \( \alpha \) in ms or degree as the time difference between AC peak and LI peak
- the time instant \( K3TP \) of the AC voltage
- the time instant \( K1TP \) of the LI voltage

With the evaluation switch formula the evaluation method for each individual channel can be selected.

For channel 1 the selected LI evaluation automatically calculates the peak and time parameter and the overshoot beta.

For channel 3 the AC evaluation was selected.

Furthermore the macro with name PHASE-LI-K3 was selected, details later.

The AC evaluation rules were set to peak value and DC offset as also for peak time for phase calculation.

To eliminate digitizer noise the channel 3 is smoothed with 100 samples with help of an virtual auxiliary channel 4 (selectable for further evaluations) and then evaluated in the displayed evaluation interval \( t_{min} = -1000 \text{ ms} \) to \( t_{max} = 1000 \text{ ms} \)

Makro Editor

The Makro Editor allows definition of MAKROS which contain expressions with reference to evaluation results of the basic evaluations, e. g. LI, SI, IO, IC, RECT, STEP, TIME, FFT, TFUM, ...

The expressions can be input in the formula field line for line, the variable names can be named free.

This expressions are evaluated immediately after the basic evaluations are performed and then the results are shown in the evaluation window under RESULTS on the right side of the display window.
**AC Routine Tests**

This picture shows an A.C. Routine test with constant voltage starting at ‘Start’ for approx. 15 Seconds, then the test voltage was increase slowly until the breakdown occurred.

The breakdown automatically triggers the digital recorder and switches the timebase from 10 kS/s upto 10 MS/s to show the breakdown behavior in detail.

In the information window right beside the display window the A.C. voltage immediately before the breakdown is shown as also further selected evaluation parameters e.g. the frequency and the test time

**Digital Voltmeter inbuilt (peak, peak/√2, rms)**

For a.c. measurement of voltage and current a digital multimeter can be displayed for each physical recorder channel

**START - STOP button for test time control**

**Waterfall Diagram for Type Tests on Cables**

This picture shows a superimposed voltage type test with direct voltage d.c. and superimposed switching voltage SI displayed as waterfall diagramm with selectable No. of shapes, e.g. 14 shapes with horizontal offset of 4%.

The shapes can be preselected and moved horizontally and vertically with selectable offset values.

The test voltage was increased starting with No. 11 and the breakdown occurs with No. 14.

**Superimposed Voltage Test on H.V. Cables with D.C. and SI**

This picture shows a superimposed voltage test on H.V. Cables with D.C. and SI

Evaluation settings for superimposed voltage and initial peak amplitudes can be selected.