HIGH VOLT
Test with the best.®

CONTROL SYSTEM HiCOS

- Control for HV test systems and measuring devices
- Easy and intuitive handling
- Flexible and expandable design with modules
- Acceleration of the workflow

OVERVIEW

FACTS IN BRIEF

The HiCOS control system is a collection of modules to control test systems and to record, manage, evaluate and report the measuring data. It is suitable for mobile and stationary test systems and measuring devices.

The modular design of the HiCOS control system enables functions to be further expanded.

Existing test systems from other manufacturers can be upgraded with HiCOS.

HICOS BASIC & ADVANCED

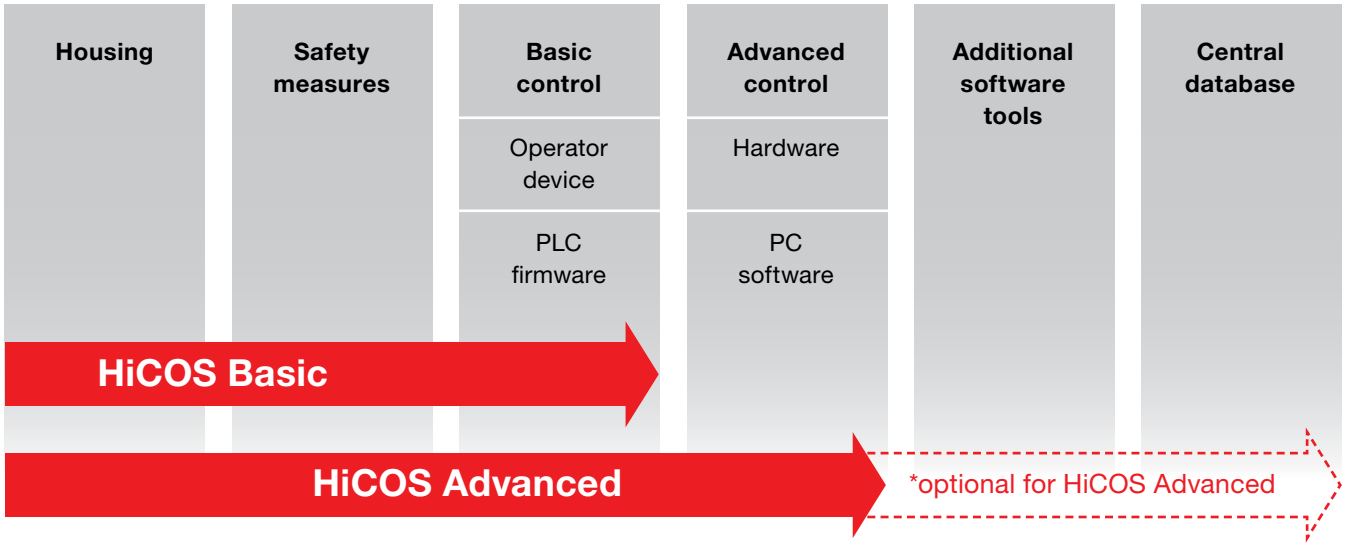
HiCOS Basic

HiCOS Basic contains all necessary modules to control a high voltage test system. It allows manual and basic automatic test procedures. Safety measures according to current standards are included to prevent injuries to the operator. Apart from the safety measures and the housing, HiCOS Basic consists of the hardware HiCO Basic and the PLC software iCOS Basic.

HiCOS Advanced

HiCOS Advanced extends HiCOS Basic with a computer control. There are several options available that ensure the system's compliance with various specific test bay requirements. For example, several high voltage test systems and measuring devices can be connected via a central database to exchange measuring data and generate central reports. HiCOS Advanced consists of the hardware HiCO Advanced and the PC software iCOS Advanced as well as the standard safety measures and the housing.

MODULES OF HiCOS



BENEFITS

- EASY HANDLING DUE TO UNIFIED AND INTUITIVE OPERATING PHILOSOPHY
- AUTOMATED COMPLETE REPORTS OF ALL TESTS AND MEASUREMENTS THROUGH DATABASE
- EXPANDABLE MODULAR DESIGN ALLOWS ADAPTION TO GROWING DEMANDS

FUNCTIONS

	HiCOS Basic	HiCOS Advanced
Basic control		
Control of test systems with operator device	✓	✓
Language selection	○	○
Advanced control		
Remote diagnostics		✓
Uninterruptible power supply for the industrial PC		✓
Control of test systems and measuring devices		✓
Recording of measuring values (locally)		✓
Local data management		✓
Local report generation		✓
Language selection		○
Additional software tools		
Data management and report generation		○
Individual report design		○
Evaluation of statistics		○
Central database		
Central data storage		○
Housing		
EMC protection	✓	✓
Safety measures		
Emergency-off (acc. to IEC 62061)	✓	✓
Safety loop connection (acc. to IEC 62061)	✓	✓
Video monitoring		○
Safety area configuration		○

✓ included ○ optional

MODULES

Basic control
Programmable logic controller (PLC) based human interface, necessary for each high voltage test system. It allows operators to setup the control, perform manual and simple automatic test procedures as well as visualize measuring values, status information and the states of the safety functions.

Operator device HiCO Basic
- **PLC based hardware** with touch screen

PLC firmware iCOS Basic
- **Firmware** adapted to the high voltage test system
- Different **language packages** available (optional)

Fig. 1 **Operator device HiCO Basic**

Advanced control
In addition to the functions of the basic control, the computer based human interface allows one or several high voltage test systems to be conveniently operated together with a PC, the measured values to be stored to a local database, as well as the generation of reports. Integration of external measuring devices is available on request.

Hardware, HiCO Advanced
- **Industrial PC or laptop**
- **Remote diagnostic module** allowing the visualization of test settings and the installation of updates via remote access
- **Uninterruptible power supply** ensuring proper shutdown of the industrial PC in case of an emergency-off

Software, iCOS Advanced
- **Platform software** to control the test system, record the measuring data in a local database, manage the test results and generate reports as a Word file
- **Device interfaces** to connect high voltage test systems and measuring systems to the computer control
- **Test applications** to perform tests and measurements with the connected systems
- **Test wizards**
- Different **language packages** available (optional)

Fig. 2 **Operator board containing the advanced control**

Additional software tools
It is a collection of additional software tools and add-ins for Microsoft Office that uses the data from the local or central database. They are installed on the industrial PC running the control software iCOS Advanced. If the iCOS database module is available, the software tools can also be installed on any office PC that is connected to the local network.

Additional software tools
- **Central Data Manager**: Organization of test objects, preconfiguration of tests and generation of central reports
- **Report Template Designer**: Design of templates for the test report
- **Statistic Module**: Statistical analysis of measured values

Fig. 3 **How the central database works**

MODULES

Central database

The iCOS database is a professional SQL database optimized for test bays with several high voltage test systems and measuring devices. Several local databases can be synchronized with the central database. This facilitates redundant data storage and enables central data management as well as the generation of central reports.

iCOS Central database

- **Professional SQL database** for safety and remote access purposes
- **Optional server** for installation of the SQL database

Fig. 4 **How the central database works**

Safety measures

Measures to ensure the safety of operators fulfilling the latest requirements of international standards.

Components

- **Safety functions of the control** – the control of each HIGH-VOLT test system includes the safety functions Emergency-off and Safety loop, which fulfill the requirements of IEC 62061 (e.g., redundant safety loop connection). It is possible to include external emergency-off buttons and door contacts and to interconnect several test systems. Safety guards and safety columns are available.

- **Video monitoring** is used to oversee complex test bays. A camera transfers the pictures to the industrial PC.

- **Safety area configuration and test bay visualization** are designed for test bays with several test systems. It allows the test bay to be flexibly organized into different test areas. Single door contacts and emergency-off buttons can be assigned to a certain test area. Additionally, a display shows the status of the door contacts and the emergency-off buttons.

Fig. 5 **Safety measures: test bay visualization (top), safety guard (left), safety column (right)**

Housing

The housings contain the hardware of the other modules and measuring devices. They are standard housings modified to guarantee high electromagnetic shielding and reliable operation. The selection of the housing type depends on the application of the test system, the local conditions and the customer's preferences.

Components

- **Operator board, OB**
- **Operator rack, OR**
- **Operator desk, OD**

Fig. 6 **Housing types: operator rack (left) and operator board (right)**

Fig. 7 **Control room with operator desks (OD) of a transformer test bay with several high voltage test systems**

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