Increasing the high voltage stepwise is a task that is often required during type testing and production testing of high voltage products. The STEPcompact is an instrument to automate such step tests. The unit combines the control function with the measurement capabilities of a high voltage meter. As a stand-alone instrument, the STEPcompact can be easily moved between different high voltage test sets.

The STEPcompact measures the voltage signal derived from a capacitive or resistive divider. Using a fiber optic transmission, the UP and DOWN relay contacts of the voltage regulator are actuated to adjust the high voltage according to the programmed test sequence.

Features
Similar to the HVcompact, the instrument calculates and displays the characteristics of the captured high voltage signal such as $U$, $U/O2$, $U_{rms}$, frequency, and the crest factor. The unit accepts a nominal input voltage of 100 V$_{rms}$. In order to correctly acquire even excessively distorted high voltage signals, the STEPcompact samples up to 200 V peak signals.

Using the five menu-driven control buttons, up to 35 different test sequences can be programmed and stored in a non-volatile memory. A test sequence consists of steps and ramps in any order. Besides the automatic mode, a manual mode can be used to set a specific voltage and keep it over time. In factory environments with strongly varying load situations, this function can be very helpful to maintain a stable high voltage level with long-term tests.

Up to seven configurations can be stored in the non-volatile memory in order to adapt the instrument to the properties of different high voltage test sets. Besides the divider ratio, a configuration setup contains settings such as the control cycle or the control window to tune the instrument to the properties of the high voltage test set.
In the standard configuration, the STEP compact comes with a self-contained relay box that is remotely controlled via a fiber optic cable. Alternatively, a direct connection to the HV control, Power Diagnostix standard control unit for high voltage test sets, can be provided.

To ensure a safe unattended processing of a step test, the STEP compact offers several safety features. Incipient breakdown is detected by monitoring the change of the voltage (dU/dt). Further, timeout limits can be set. The instrument keeps a record of the recent test to validate its successful completion or to indicate the point of breakdown or cancellation.

HV pilot Software
The HV pilot software allows the complete supervision of a high voltage test sequence. Using a serial interface, the software connects to the STEP compact for the voltage control and measurement. Further, the HV pilot software offers convenient programming and editing of the test sequences. Additionally, this software can connect to the ICM compact to read the partial discharge level and to the TDA compact to read the tand as well as the capacitance of the device under test. An export function allows to save the acquired data in file formats for MS-Excel and MS-Word.

Offering complete measurement of high voltage signals plus flexible programming of step test sequences makes the STEP compact an ideal and cost-effective solution to automate high voltage test sets. The optional software HV pilot offers convenient programming and reporting.
The HVcontrol unit combines all standard functions required to manually operate a high voltage transformer. It includes a safety contact loop, the measurement of primary and secondary current, as well as of the primary voltage. User-settable limits for the primary and secondary current trip the main circuit breaker. The safety loop, as well as the emergency stop is hard-wired and equipped with forced contacts.

Due to its flexible design, the HVcontrol can be used on any high voltage test set. Especially, in case of the modernization of old test sets, the HVcontrol offers a multitude of improvements if compared with conventional relay based controls.

The unit comes with rigid solid-state piezo push buttons. Each of these control buttons has an illuminated ring to indicate the state of the function controlled by this specific button. This allows an easy and intuitive operation of the HVcontrol.

The HVcontrol comes in a 19"-subrack (3HU). This makes it an easy replacement of older controls having the same size. On its rear panel, the HVcontrol offers conveniently detachable screw terminals for the different controls and optional instruments.

**Drop-in replacement of old control units**

**Modular Concept**

Besides a mere drop-in replacement of an old control, the HVcontrol can be combined with other test instruments of Power Diagnostix to build a fully automated acceptance test environment. It can be ordered with several optional functions e.g. for STEP tests, TTL gating. It’s also possible to deliver the HVcontrol with a SCOPE display.
Further, the instrument can be combined with the ICMcompact for partial discharge testing and with the TDAcompact for tand and capacitance measurements.

**Fully automated test systems**

Power Diagnostix also provides industrial PC’s to control the combination of instruments. Depending on the application and its requirements, the instruments can be mounted in desktop enclosures, 19" racks, or control desks fitted with 19" mounts.

**HVpilot Software**

The HVpilot software allows the complete supervision of a high voltage test sequence. Using a serial interface, the software connects to the STEPcompact for the voltage control and measurement. Further, the HVpilot software offers convenient program-

Easily replacing out-dated control units of high voltage test sets make the HVcontrol a good choice when modernizing high voltage test labs. Additionally, the HVcontrol is prepared to interface with the STEPcompact for automated high voltage tests.