GOSSEN METRAWATT

Safety through Competence

SYSKON | P SERIES

SYSTEM | KONSTANTER

Laboratory Power Supply

Professional Standard for Precision: SYSKON P Series

Electrical and electronic products are taking over ever increasing numbers of more and more complex functions. As a manufacturer or a user, you are thus required to conduct more extensive tests and simulations.

The New KONSTANTER Generation

The programmable SYSKON P series of KONSTANTER power supplies offers you great potential to this end: top quality manual and remote controllable DC power supply for laboratory and system use. They're distinguished by a broad range of functions and are distinctly practice-oriented. The requirements and suggestions of users from many areas of use were taken into consideration during the product development phase. This assures that the devices deliver ideal performance features in a great variety of configurations.

Today, automated operation dominates both production and testing. For this reason, SYSKON KONSTANTERs are furnished with one analogue and two digital remote control interfaces as standard equipment. Special circuit technologies ensure short response times and allow for fast, efficient test sequences.

Ultramodern Technology for Maximized Efficiency

Menu driven operation with the help of the navigation keys simplifies manual programming of device settings. Frequently required setup menus are assigned to function keys. Display and setup modes are clearly separated for each setting. Voltage and current values are adjusted with rotary knobs. The effective resolution for the rotary encoders is preselected using the navigation keys. The numeric keypad supports quick entry of targeted setpoints for voltage and current. The user can save individualized device configurations to setup memory, and retrieve them whenever required. This assures time-saving setup of the device for recurring periodic tests. The sequence function supports automated test runs, even without an interconnected PC. Long-term test sequences which apply alternating loads to the device under test can thus be easily implemented.

Features

- Extremely short response times (e.g. SYSKON P1500, Unom < 2ms)
- High-precision measuring accuracy (U = 0.05%, I = 0.4%)
- Output power ranging from 500W, 800W, 1500W, 3000W, 4500W
- Comprehensive protective functions (OVP, OCP)
- Clearly structured operating software (Soft Front Panel) included
- DAkkS calibration certificate
- Power factor correction
- Dynamic sink can be activated/deactivated
- Measuring functions with min-max memory and tolerance band comparison
- Extended sequence functions
  (Setup memory = max. 15, sequence memory = max. 1,700)
- Programmable (menu-controlled)

Excellent Dynamic Performance – Diverse Application Options

SYSKON P series KONSTANTERs cover nominal power ratings of 500 W, 800 W, 1500 W, 3000 W, 4500 W with output voltages from 8 to 60 V over a broad range with a spread of $^{2.4}/_{1}$. This bandwidth is otherwise only achieved by two devices with characteristic curves in the form of square waves. The broad-range mains input with sinusoidal current consumption allows for use in countries with low-line voltage values.
The devices offer excellent dynamic characteristics for setpoint changeovers and sudden load variations. Setpoints can be changed automatically once per millisecond.

Problem Solver for Long-term Tests

Thanks to this variable option, SYSKON KONSTANTERs make it possible to control devices under test with precision voltage and current sequences. And nominal values can be read out continuously for long periods of time. The SYSKON is thus transformed into a genuine problem solver for long-term tests with either static or dynamic requirements. Thanks to precise digital setpoint specification, generated quantities can be duplicated anytime, making results reliably reproducible.

SYSKON | P1500
60-60 SYSTEM | KONSTANTER

Overview

- 2 large LCD panels
- Operating mode display
- Display of protective functions
- Display parameters
- Status display for the analogue interface
- Status display for the digital interface

Direct Access

- Manual rotary encoders
- Numeric keypad
- Navigation keys
- Function keys

Analogue Interfaces

- Analogue interface (standard feature)
- 2 trigger inputs
- 3 signal outputs
- Switchable analogue setpoint value for voltage (superimposition)
- Switchable analogue setpoint value for current (superimposition)
- Monitor outputs for actual voltage and current values
- SENSE inputs for connecting power consumers
- Auxiliary power output for supplying power to external components

Digital Interfaces

- USB port (standard feature)
- RS232 port (standard feature)
- IEEE 488 (GPIB) interface (optional)
- Operating software / LabView drivers

Sequence Function – Generator for Test Signals

The memory function makes it possible to save and recall device configurations using a battery-backed memory module. The memory module is equipped with two storage areas:

- **Setup memory:** 15 memory locations for complete configurations
- **Sequence memory:** 1700 memory locations for the following SEQUENCE- parameters: voltage setpoint USET, current setpoint ISET, dwell time TSET and function request FSET, with capabilities for invoking subsequences, linking sequences and generating setpoint ramps.

Any desired voltage and current setpoint profiles within the KONSTANTER's functional range can be programmed with the help of sequence functions. Functions can be run with a specified number of repetitions, or continuously. The ability to link sequences and execute sequences as subprograms is a new option. In this way, any desired combinations of previously defined sequences can be created.
Beyond this, it's also possible to switch to other device settings in setup memory while the sequence is running, for example trigger thresholds for protective devices can be changed.

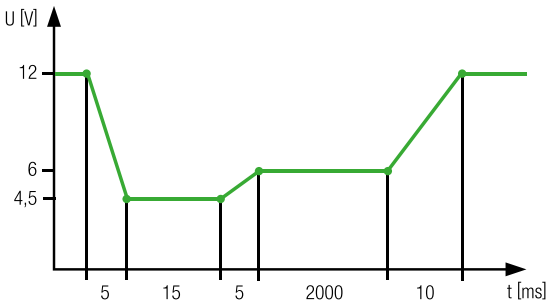
Further special features:

- 1 ms time grid
- Ramp function for voltage and current at the transition
- Control of signal outputs via the analogue interface
- Activation/deactivation of the analogue control inputs for voltage and/or current
- Single-step operation via cursor keys or keypad

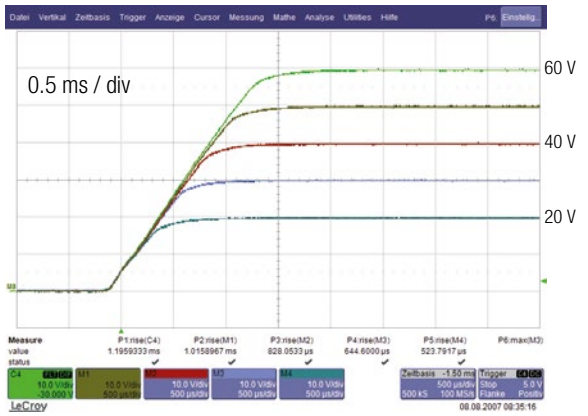
Extremely Short Response Times

Special circuit technologies ensure short response times and accelerate the entire testing procedure.

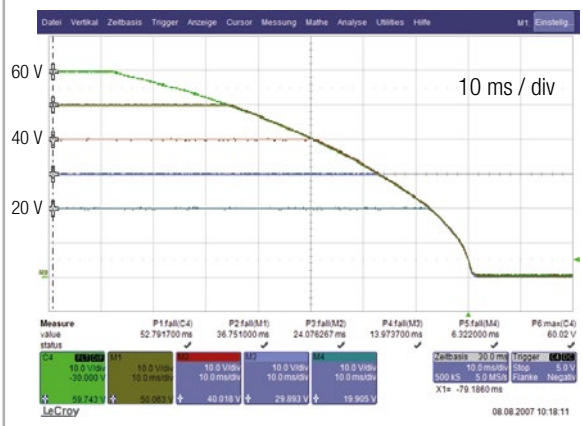
- Integration into open-loop and closed-loop control systems with analogue signals
- Integration into complex test systems with digital busses
- Automated sequences due to sequence function without the necessity – however, with the possibility – of external control.



Simulation of a starter motor characteristic curve



Rise time of output power



Fall time of output power

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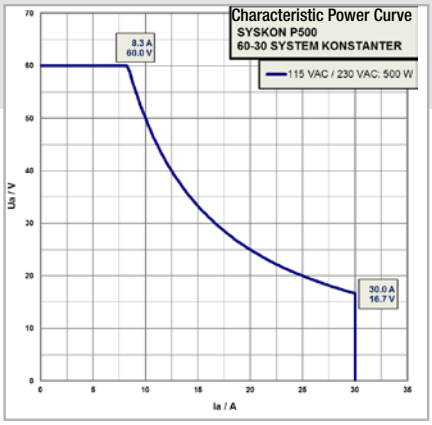
SYSTEM | KONSTANTER

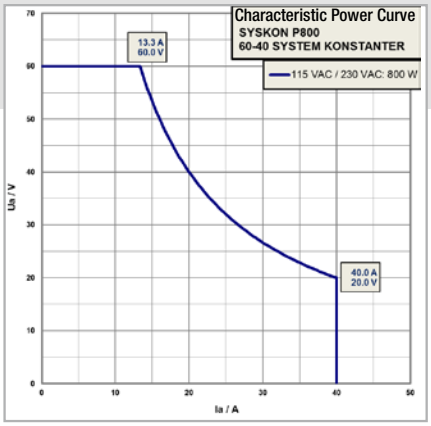
SYSKON | P500
60-30 SYSTEM | KONSTANTER

Power ■ 500 W output power



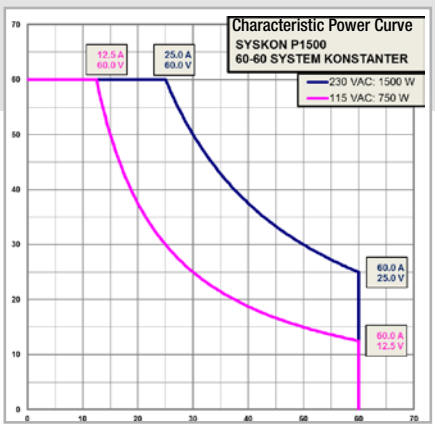
SYSKON | P800
60-40 SYSTEM | KONSTANTER

Power ■ 800 W output power



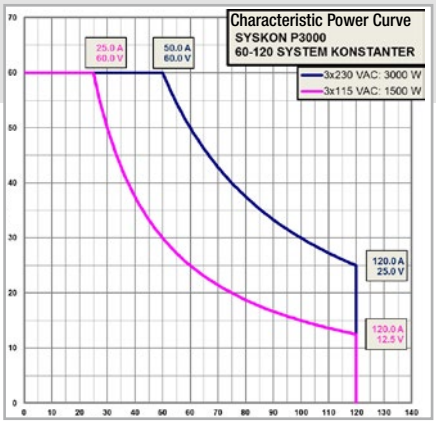
SYSKON | P1500
60-60 SYSTEM | KONSTANTER

Power ■ 1500 W output power



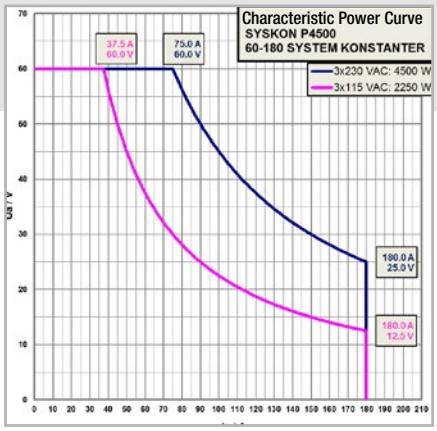
SYSKON | P3000
60-120 SYSTEM | KONSTANTER

Power ■ 3000 W output power



SYSKON | P4500
60-180 SYSTEM | KONSTANTER

Power ■ 4500 W output power



SYSKON | P3000
60-120 SYSTEM | KONSTANTER

SYSKON | P4500
60-180 SYSTEM | KONSTANTER

■ Terminals at the back

Range of Applications and Examples

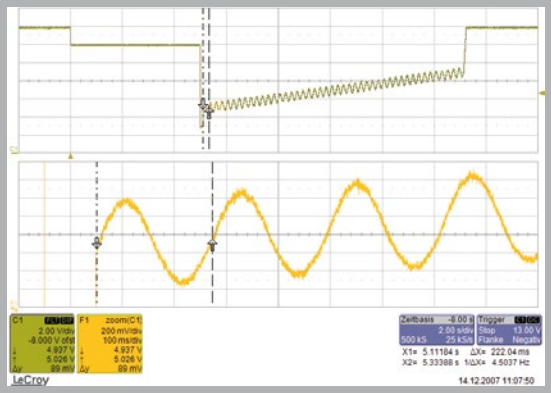
Production and Testing

- Automotive electrical and electronics
- Surface finishing
- Telecommunications technology
- Computer sciences
- Control and drive technology
  - Frequency converters
  - Motors
- Power semiconductors
- Uninterruptible power supply (UPS) systems
- Circuit breakers and protective motor switches
- Lamps
- Plasma deposition
- Consumer electronics

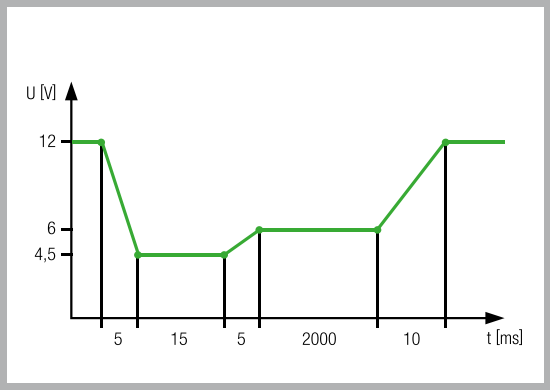
Research and Development

- Semiconductor production and processing
- Power and hybrid technology
  - Fuel cells
  - Photovoltaics
- Energy storage and solar technology
  - Batteries
  - Capacitors
  - Superconducting magnets
- Laser diodes
- Aviation and aerospace
- Defense technology

Automotive Electrical and Electronics



Oscillogram of SYSKON output voltage - starter motor curve with rising sine. Sine function integrated into the sequence as a subprogram.



Simulation of a voltage curve in an automotive electrical system when starting the engine

■ Automotive Electrical and Electronics

During the development of numerous electrical and electronic automotive components, they must also be tested for their performance with distorted voltage. Testing is based upon diverse voltage sequences which are specified in the EMC standards or by the automobile manufacturers. The short response times and the sequence function offered by the SYSKON are taken full advantage of in this area. These components are frequently produced with automated machines all year long, 24 hours a day. KONSTANTERs can be easily incorporated into the utilized manufacturing systems via convenient interfaces and free software. And thanks to their outstanding load capacity, continuous operation is no problem for the devices.

■ Surface Finishing

Whether they're used as static voltage sources in plasma coating technology or as pulsating current sources for electroplating and erosion technology, SYSKON P KONSTANTERs are distinguished by:

- Minimal ripple
- Steep slopes at abrupt voltage and current changes
- Setpoint changeovers adjustable once per millisecond.

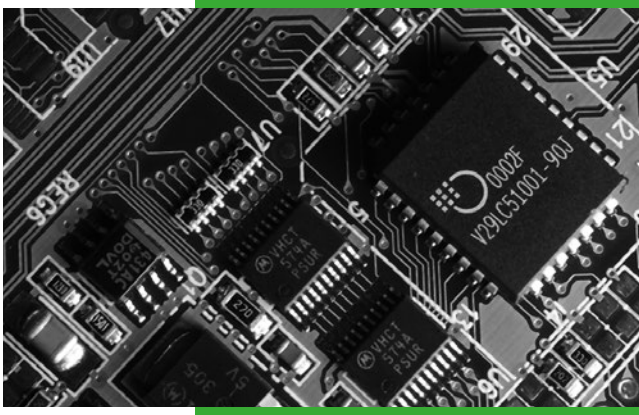
Thanks to the static and dynamic characteristics of the SYSKON Konstanters, the desired surface finish is accurately produced in accordance with the requirement.

■ Research and Development

Those who seek out and develop innovative solutions are confronted with challenges again and again. The functional requirements for a universal power supply are accordingly diverse. SYSKON KONSTANTERs leave nothing to be desired in this respect, and all of the essential functions are nevertheless easy to use. And in order to assure that the valuable prototype is not damaged – due to either an inadvertent, incorrect setting or a defect – KONSTANTERs are equipped with effective protective and self-monitoring functions.

■ Semiconductor Production and Processing

From the developmental phase to type testing, from burn-in and stress tests in production right on up to receiving inspection at the processing plants, semiconductors are subjected to numerous, frequently time-consuming tests. Setup sequences which are run automatically by KONSTANTER devices make it possible to execute testing of this sort without elaborate control devices.



Efficient and Time-saving Device Configuration

SYSKON KONSTANTERs are ideally set up to meet special requirements for automated operation. They're furnished with analogue and digital remote control interfaces as standard equipment. The free software included complements PC control functions.

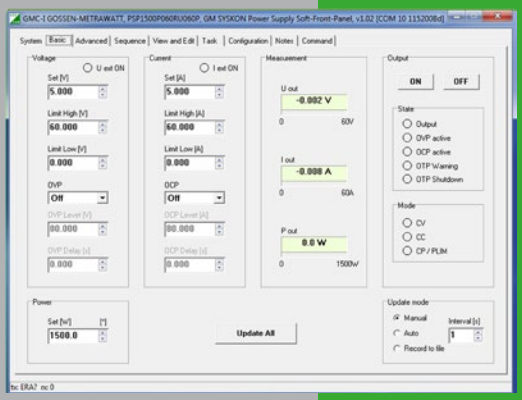


Tableau Basic

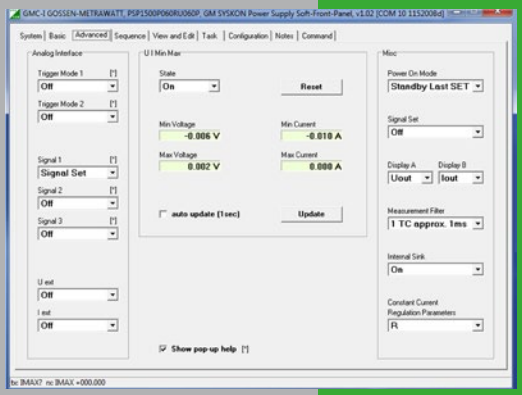


Tableau Advanced

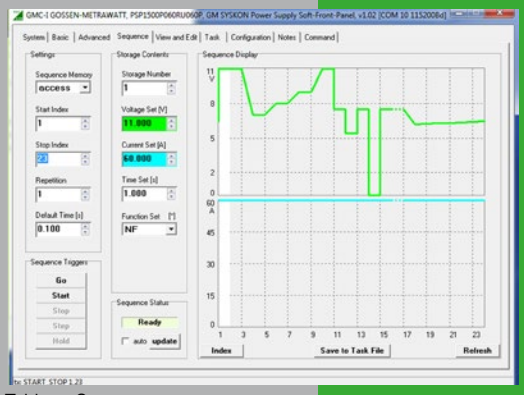


Tableau Sequence

Operating Software for Computer Controlled Systems

Convenient software in English for quick and easy use of the SYSKON KONSTANTER is available free of charge. Its central element is the Soft Front Panel which enables the user to select the specific function for their own application from the comprehensive range provided – without any programming at all. The panel has a clear-cut layout and is broken down into task-specific displays.

The software detects KONSTANTERs which are connected to the various possible interfaces USB, RS232 and GPIB.
KONSTANTERs detected by the software are identified automatically and can be selected for the respective application.
If several KONSTANTERs are connected, the software can be started separately for each device, and each device can be individually controlled.

Display Overview

- **System:** log-on data of the respective KONSTANTERs
- **Basic:** set basic functions, e.g. voltage and current
- **Advanced:** use of additional functions, e.g. analogue interface
- **Sequence:** control and handling of sequence functions
- **View and edit:** list of the desired portion of a sequence and editing options
- **Task:** uploading of sequence functions saved as text files to the KONSTANTER
- **Configuration:** save, load or display complete device settings to/ from setup memory
- **Notes:** Overview of setup parameters to ensure proper sequence running - two lines for comments each are additionally available
- **Command:** transmit ASCII commands and receive the device response

Calibration Services by the Biggest DAkkS Lab World-wide

As a leading supplier of test and measuring instruments, GOSSEN METRAWATT also guarantees you top service in the field of reliable calibration of electronic quantities.

Maximum performance - because responsibility is a commitment

Calibration is a matter of confidence – and competence. Instruments will only deliver certain and definite results if they work very precisely in each and every function. The DAkkS calibration center of GOSSEN METRAWATT is specialized in guaranteeing the maximum of precision for each user.

Quality Assurance

In order to be able to reliably assure the quality of products and data, tests involving highly precise settings and accurate measurement of output quantities are often required.
These, as well as other parameters, are extensively documented in the DAkkS calibration certificate included with the KONSTANTER.

If, during the course of time, the device no longer precisely complies with the specified levels of accuracy, it can be readjusted using suitable calibration equipment without opening the housing via the computer interface or its own keypad.

Your Advantages:

- All measuring quantities from one source
- Accredited according to DIN EN ISO/IEC 17025 under No. D-K-15080-01-01
- Calibration laboratory for DAkkS, ISO & proprietary calibrations
- Certified according to ISO 9001
- Environmental management certified according to ISO 14001
- Calibration independent from manufacturers
- Guaranteed retraceability of all measuring quantities

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-K-15080-01-01

GOSSEN METRAWATT DAkkS Kalibrierdienst CF357 D-K-15080-01-01 2012-08

Technical Data

Type	Mains Connection	Output Power		Setting Range		Setting Accuracy		Residual Ripple		Setting Time Uset
		115 V~	230 V~	Voltage V	Current A	Voltage +/- (%+mV)	Current +/- (%+mV)	Voltage mV TRMS	Current mA eff	OV - Unom Unom - OV
SYSKON P500 60-60 SYSTEM KONSTANTER	115 V ~ 230 V ~	500	500	0...60	0...30	0.05 + 30	0.05 + 90	6	50	2 ms 70 ms
SYSKON P800 60-60 SYSTEM KONSTANTER	115 V ~ 230 V ~	800	800	0...60	0...40	0.05 + 30	0.05 + 90	6	50	2 ms 70 ms
SYSKON P1500 60-60 SYSTEM KONSTANTER	115 V ~ 230 V ~	750	1500	0...60	0...60	0.05 + 30	0.05 + 90	6	50	2 ms 70 ms
SYSKON P3000 60-120 SYSTEM KONSTANTER	3 x 115/200 V~ 3 x 230/400 V~	1500	3000	0...60	0...120	0.05 + 48	0.1 + 135	10	75	4 ms 70 ms
SYSKON P4500 60-180 SYSTEM KONSTANTER	3 x 115/200 V~ 3 x 230/400 V~	2250	4500	0...60	0...180	0.05 + 48	0.15 + 180	15	100	7 ms 70 ms

Optional for all versions: IEEE 488 interface (GPIB)
Optional for P300 I P4500: 3-phase mains cable

GOSSEN METRAWATT

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