



More than **sensors + automation**



JUMO Campus 2018

Seminars | Webinars | E-learning courses | Technical literature





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Dear Reader, Welcome to JUMO Campus!

In 2018 we wish to continue assisting you to keep your technical knowledge fresh and to make the most of your JUMO product.

JUMO Campus portal

To make it as easy as possible to find the most suitable training course for you we have compiled our **complete training program** in our JUMO Campus portal. Here you will find seminars, webinars, e-learning courses, webinar recordings, and technical literature in an **easy-to-read format**. Thanks to various **filter and search functions** you can easily find relevant training options for your product or subject area. Come and visit us at <http://campus.jumo-en.info> and take a look for yourself.

Seminars & webinars

JUMO has been providing **seminars “by practitioners for practitioners”** for over 20 years: All of our speakers are proven practitioners who have in-depth knowledge, both about their areas of specialization and our JUMO products. We have set ourselves the goal of providing training courses of the highest quality. This is why we are very pleased to receive your positive feedback. The average rating we received from our participants was **1.3 (A+)**!

Furthermore, **we offer free JUMO webinars** which provide a first glimpse of a selected subject area in about one hour. Due to the very positive feedback we have received, we have once again expanded the range of courses.

Exclusive training courses & exclusive webinars

We would be happy to provide all our seminars as individual exclusive training courses on-site **at your company**. As of this year we now also offer exclusive webinars online. These generally last for 1-2 hours. They give you a compact overview of a topic that is especially tailored for you or that deals with a particular issue. Your advantage: No travel expenses are necessary, making this type of online training highly efficient.

E-learning courses & technical literature

In addition, the JUMO Campus portal contains a number of e-learning courses and technical literature that deal with the entire subject of measuring and control technology **for you to study on your own**. You can now find all of our previous webinar recordings on the portal.

A detailed overview of our complete range of training courses can be found on the following pages. We look forward to meeting you soon in person or online at JUMO Campus.

Sabine Häcker
Head of JUMO Campus



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<http://campus.jumo-en.info>

Overview of 2018 training courses

Temperature

| | | | |
|---------|--|--------------------------------|------|
| Webinar | Practical basic principles of electrical temperature measurement | Mar. 13, 2018 Sep. 05, 2018 | p. 7 |
|---------|--|--------------------------------|------|

Liquid analysis

| | | | |
|---------------|---|--------------------------------|-------|
| Basic course | Analytical measurement technology for practitioners | on request | p. 7 |
| Device course | JUMO AQUIS touch S/P – modular multichannel measuring devices for liquid analysis | on request | p. 8 |
| Webinar | Basic principles for pH measurement and use of measurement technology | Jan. 16, 2018 Sep. 18, 2018 | p. 27 |
| Webinar | Basic principles of redox potential measurement and use of measurement technology | Jan. 17, 2018 | p. 28 |
| Webinar | Basic principles of chlorine measurement and use of measurement technology | Jan. 18, 2018 | p. 28 |
| Webinar | Basic principles of measuring dissolved oxygen and use of measurement technology | Jan. 23, 2018 | p. 28 |
| Webinar | Basic principles of turbidity measurement and use of measurement technology | Jan. 25, 2018 | p. 28 |
| Webinar | Connection of JUMO digiLine sensor technology to a JUMO AQUIS touch S/P | Jan. 30, 2018 | p. 29 |

Pressure and level

| | | | |
|--------------|--|--------------------------------|-------|
| Basic course | Pressure and level measurement technology – basic course | on request | p. 9 |
| Webinar | Electronic pressure measurement technology – pressure types, sensor technology, and transmitters | Feb. 06, 2018 | p. 29 |
| Webinar | Hydrostatic level measurement – basic principles and startup | Feb. 07, 2018 Sep. 13, 2018 | p. 29 |

Flow

| | | | |
|--------------|---|---------------|-------|
| Basic course | Flow measurement technology – basic course | on request | p. 10 |
| Webinar | Flow measurement according to the differential pressure method | Apr. 12, 2018 | p. 30 |
| Webinar | Industrial flow measurement technology – basic principles and measurement methods | Nov. 06, 2018 | p. 30 |

Humidity

| | | | |
|---------|--|--------------------------------|-------|
| Webinar | Introduction to humidity measurement – physical basic principles and overview of measurement methods | Feb. 14, 2018 Sep. 12, 2018 | p. 30 |
|---------|--|--------------------------------|-------|

Control

| | | | |
|---------------|---|--------------------------------|-------|
| Basic course | Measurement, control, and recording technology for practitioners | on request | p. 11 |
| Basic course | Control technology for practitioners | on request | p. 12 |
| Basic course | Control parameters and optimization of controllers | on request | p. 13 |
| Device course | Configuration and operation of JUMO compact controllers | on request | p. 14 |
| Device course | JUMO DICON touch – two-channel process and program controller with paperless recorder and touchscreen | on request | p. 15 |
| Webinar | Using cascade control | Feb. 20, 2018 Nov. 13, 2018 | p. 30 |
| Webinar | Basic principles for using thermostats based on the example of the JUMO heatTHERM series | Feb. 22, 2018 | p. 31 |
| Webinar | How to enhance efficiency by safely applying autotuning in JUMO controllers | Apr. 26, 2018 | p. 31 |

Recording

| | | | |
|---------------|--|--------------|-------|
| Device course | JUMO paperless recorder for recording process data according to FDA 21 CFR Part 11 | on request | p. 16 |
| System course | Safe usage of measurement data from JUMO components with recording function | on request | p. 17 |
| Device course | Data recording and evaluation with JUMO paperless recorders – basic course | on request | p. 18 |
| Webinar | JUMO PC Security Manager software PCS | May 08, 2018 | p. 31 |

Automation

| | | | |
|---------------|--|---------------|-------|
| System course | Measurement, control and automation system JUMO mTRON T – basic course | on request | p. 19 |
| System course | Measurement, control and automation system JUMO mTRON T – advanced course | on request | p. 20 |
| System course | PLC programming software CODESYS V3.5 and JUMO mTRON T | on request | p. 21 |
| System course | Plant visualization software JUMO SVS3000 | on request | p. 22 |
| Device course | Thyristor power controller of the JUMO TYA 200 series | on request | p. 23 |
| Webinar | Transmitter: Connection, configuration, handling | Feb. 01, 2018 | p. 31 |
| Webinar | JUMO mTRON T – process engineering application | Feb. 27, 2018 | p. 32 |
| Webinar | JUMO functions in CODESYS applications from JUMO mTRON T | Feb. 28, 2018 | p. 32 |
| Webinar | Modbus (part 1): Basic principles and example configuration | May 02, 2018 | p. 32 |
| Webinar | Modbus (part 2): Connection of Modbus slaves to the PLC of JUMO mTRON T | May 03, 2018 | p. 32 |
| Webinar | JUMO thyristor power controller of the TYA series – functions and controls for three-phase operation | Jun. 19, 2018 | p. 32 |

Monitoring

| | | | |
|---------|---|---------------|-------|
| Webinar | Application of JUMO safetyM STB/STW – safety temperature limiter and safety temperature monitor | Jun. 07, 2018 | p. 33 |
|---------|---|---------------|-------|

General topics

| | | | |
|--------------|--|--------------------------------|-------|
| Basic course | Functional safety in Europe pertaining to Safety Integrity Level and the Performance Level – basic course | on request | p. 24 |
| Basic course | Explosion protection in Europe according to ATEX: Basic theoretical principles and practical implementation with equipment | on request | p. 25 |
| Webinar | Basic principles of explosion protection (ATEX) and the use of JUMO equipment with the protection type intrinsically safe | Feb. 15, 2018 Oct. 17, 2018 | p. 33 |
| Webinar | Connection of JUMO IO-Link sensors | Mar. 01, 2018 Sep. 19, 2018 | p. 33 |

Industries

| | | | |
|---------|--|---------------|-------|
| Webinar | Industrial heat treatment according to AMS2750 and CQI-9 | Jun. 05, 2018 | p. 33 |
|---------|--|---------------|-------|



<http://campus.jumo-en.info>

Our speakers



Dipl.-Ing. Manfred Schleicher



Marcell Bräutigam



Dipl.-Ing. Jochen Darenberg



Thomas Diel



Dipl.-Ing. Klaus Gabriel



Andreas Kraus



Andreas Kraus



Dipl.-Ing. Reinhard Manns



Dipl.-Biologin Ulrike Storm



Joachim Vollmer



Dipl.-Ing. Manfred Walter

Analytical measurement technology for the practitioner

Content

The seminar covers the basic principles of different measurement parameters in analytical measurement technology. With the help of specific examples, the implementation of measuring chains and the initial startup are demonstrated. The main focus is on pH value and electrolytic conductivity measurement parameters (conductive/inductive). Further topics include important information on the measurement of dissolved oxygen and chlorine.

- Practical information about the measuring principles
- Important measurement technology features (setup and correct maintenance of sensors, wiring, configuration of the transmitters, etc.)
- Main distinctive features of sensors regarding applications with liquid analysis
- Application options for modern transmitters and controllers
- Practical session: Extensive exercises and workshops regarding:
 - Startup of the measuring chains (two workshops)
 - Performing calibrations

Objectives

After the seminar the participants will be able to start up the corresponding measurement technology and perform calibrations.

Target group

Employees planning, installing, or maintaining measuring chains with electrochemical sensors.

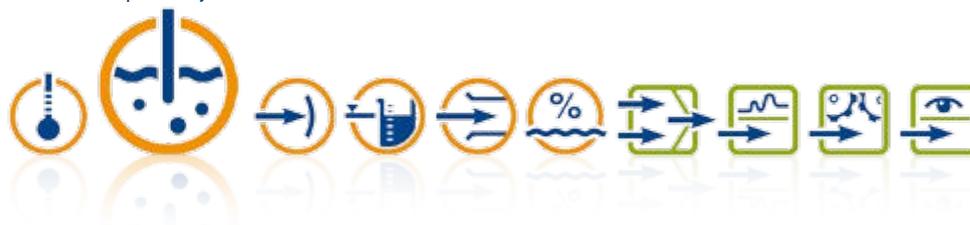
Requirements

Training in electrical engineering and/or chemistry.

| | |
|---------------------------|---|
| Course: | JK 201080 |
| Seminar type: | Basic course |
| Duration: | 1 day |
| Fee: | on request |
| Dates: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Dipl.-Biol. Ulrike Storm |
| Follow-up courses: | JUMO AQUIS touch S/P – modular multichannel measurement devices for liquid analysis, p. 8 Control technology for practitioners, p. 12 Control parameters and optimization of controllers, p. 13 Safe usage of measurement data from JUMO components with recording function, p. 17 |

Inquire here!

Liquid analysis



JUMO AQUIS touch S/P – modular multichannel measuring devices for liquid analysis

Content

The seminar covers the necessary basic principles and knowledge for the startup and operation of modular multichannel measuring devices for liquid analysis:

- Short overview of the measurement parameters pH value as well as conductive and inductive conductivity and the disinfection measurands (e.g. free chlorine)
- Hardware and display options
- Calibration logbooks, alarm and event lists, web server
- Control and recording function
- Further options with the multichannel measuring device
- Connection of JUMO digiLine sensors to the JUMO AQUIS touch S/P
- Practical session:
 - Startup of measuring chains for pH value and conductivity measurement (conductive and inductive) including calibration
 - Configuration and operation of a two-state controller based on the example of a wastewater neutralization reaction

Objectives

After the seminar the participants will know the most important functions of the JUMO AQUIS touch S/P and will be able to start up and operate the device safely for measuring analytical measurands.

Target group

Employees who are responsible for startup and operation of the JUMO AQUIS touch S/P or who would like to get an overview of the device.

Requirements

Basic knowledge for determining analytical measurement parameters and/or participation in the “Analytical measurement technology for the practitioner” seminar.

Inquire here!

| | |
|---------------------------|--|
| Course: | JK 202580 |
| Seminar type: | Device course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Dipl.-Ing. Reinhard Manns Dipl.-Ing. Manfred Schleicher |
| Follow-up courses: | Analytical measurement technology for the practitioner, p. 7 Control technology for practitioners, p. 12 Control parameters and optimization of controllers, p. 13 |



Pressure and level measurement technology – basic course

Content

The seminar covers important basic principles about pressure measurement technology as well as hydrostatic level measurement:

- Operation, structure, and features of the most important sensor types
- Technical features of pressure transmitters and level probes
- Understanding data sheet and accuracy specifications
- Application-oriented selection of pressure transmitters
- Level measurement at open and pressurized containers
- Practical session: Workshops for startup of pressure transmitters

Objectives

After the seminar the participants will be able to select, start up, and check pressure measuring devices.

Target group

All employees working regularly with the measurands pressure, differential pressure, or level, and who are responsible for the correct selection or the best possible operation of the measuring devices.

Requirements

Basic technical knowledge.

Inquire here!

| | |
|---------------|--------------------------------------|
| Course: | JK 400010 |
| Seminar type: | Basic course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Marcell Bräutigam Joachim Vollmer |



Flow measurement technology – basic course

Content

The seminar covers the basic physical principles of the different measurement methods as well as the layout and startup of the devices.

- **Physical basic principles**
 - Flow types
 - Flow calculation
- **Setup and operating principle of the measuring devices and methods**
 - Electromagnetic flowmeters
 - Differential pressure method
 - Paddle-wheel flow sensors
- **Dimensioning and accuracy**
 - Layout of the device size
- **Connection types and signal evaluation**
 - Impulse frequency output
 - Analog output methods
- **Practical session**
 - Workshops for startup and measurement data evaluation

Objectives

After the seminar the participants will be able to assign the measurement methods offered by JUMO to the requirements of the measuring point, to start up the different devices, and to carry out a safe measured value recording.

Target group

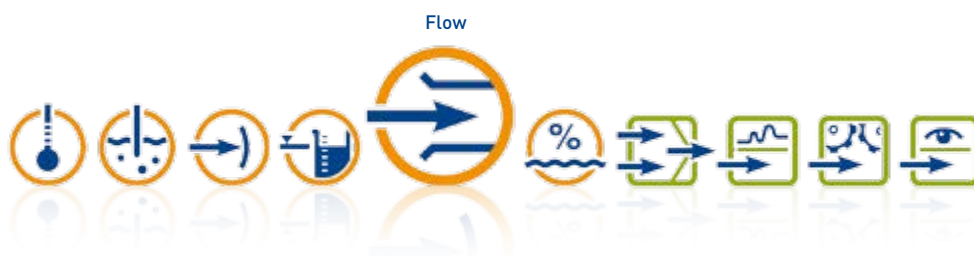
Employees in the area of plant engineering, maintenance, planning, or similar who are responsible for the startup and maintenance of these technologies or who are planning the dimensioning of measuring points.

Requirements

Basic technical knowledge.

Inquire here!

| | |
|---------------------------|---|
| Course: | JK 400020 |
| Seminar type: | Basic course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Marcell Bräutigam Dipl.-Ing. Manfred Schleicher |
| Follow-up courses: | Flow measurement according to the differential pressure method, p. 30 Industrial flow measurement technology – basic principles and measurement methods, p. 30 |



Measurement, control, and recording technology for practitioners

Content

The seminar provides core practical information about the use of components for measuring, controlling, and recording the measurands temperature and pressure.

- **General information**
 - Input and output signals for measurement, control, and recording technology
- **RTD temperature probes and thermocouples**
 - Basic principles and important information for use
- **Pressure transmitter**
 - Basic principles and important information for use
- **Transmitter**
 - Startup of two-wire, three-wire, and four-wire transmitters
- **Compact controllers**
 - Configuration and operation of the devices
 - Optimization of PID controllers (continuous controller and two-state controller)
- **Interfaces**
 - Connection of JUMO device technology to Ethernet and serial interface
- **Paperless recorder**
 - Configuration of data recording
 - Evaluation of measurement data using evaluation software PCA3000
 - Transfer of recorded measurement data via interface with communication software JUMO PCC
- **Practical session**
 - Holding a large number of workshops
 - Startups are performed using typical JUMO device technology

Objectives

After the seminar the participants will know the basics of measurement, control, and recording technology. They will also be able to install the components as well as to configure and handle typical applications.

Target group

Beginners in the field of measurement, control, and recording technology.

Experienced employees responsible for the installation and startup of RTD temperature probes, thermocouples, temperature and pressure transmitters, controllers, and paperless recorders.

Requirements

Technical training.

| | |
|---------------------------|---|
| Course: | JK 700080 |
| Seminar type: | Basic course |
| Duration: | 3 days |
| Fee: | on request |
| Dates: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Marcell Bräutigam |
| Follow-up courses: | Pressure and level measurement technology, p. 9 Control technology for practitioners, p. 12 Configuration and operation of JUMO compact controllers, p. 14 Safe usage of measurement data, p. 17 Data recording and evaluation with JUMO paperless recorders, p. 18 |

Inquire here!

Control



Control technology for practitioners

Content

The seminar covers basic theoretical principles of control technology and reinforces this knowledge during the training course with practical demonstrations. About 50 % of this practice-oriented seminar will be used for hands-on workshops.

- Basic principles of control technology
- Types of control processes
- The PID controller with continuous output and its control parameters X_p , T_n , and T_v
- Influence on the control response by X_p , T_n , and T_v
- Optimization methods
- Working with two-state, three-state, three-state modulating, and position controllers
- Control loop structures (cascade control, disturbance feedforward control, etc.) and other controller functions
- Practical session: Workshops on the covered subjects, additional practical exercises:
 - Ratio control
 - Controllers with direct control direction
 - Optimization of a controller for disturbance behavior
 - Processes without self-regulation and processes with exclusive dead time
 - Operation of non-linear processes
 - Split-range operation

Objectives

After the seminar the participants will be able to select a controller that suits their control process and to configure, operate, and optimize this controller.

Target group

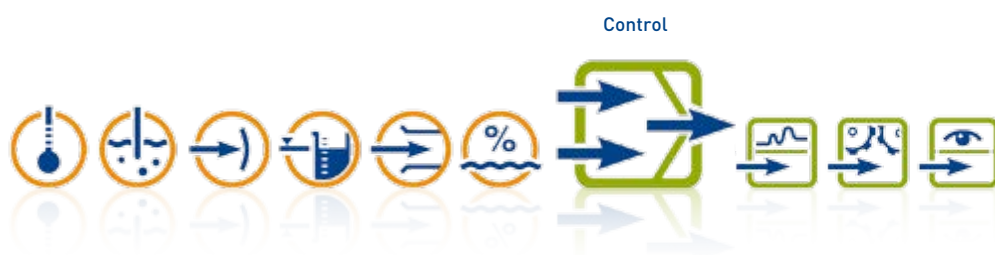
Employees involved with startup, maintenance, and servicing who require detailed information about the basic principles of control technology. Engineers and technicians involved in plant planning. All employees who would like to refresh their knowledge in control technology.

Requirements

Basic knowledge in the field of automation technology.

Inquire here!

| | |
|--------------------------|--|
| Course: | JK 700010 |
| Seminar type: | Basic course |
| Duration: | 4 days |
| Fee: | on request |
| Dates: | on request |
| Speakers: | Marcell Bräutigam Dipl.-Ing. Manfred Schleicher |
| Follow-up course: | Configuration and operation of JUMO compact controllers, p. 14 |



Control parameters and optimization of controllers

Content

The seminar provides compact and concise information about the mode of operation of the controller components P, I, and D. The participants learn how to classify applications as well as processes and to define suitable parameters:

- The closed control loop (mode of operation, components, and concepts)
- The controller components P, I, and D
- Influence on the control response by control parameters X_p , T_n , and T_v
- Autotuning in JUMO controllers
- Distinctive features specific to the two-state controller
- Practical session: Workshop for manual optimization of PID controllers (continuous controller and two-state controller) for an unknown control process

Objectives

After the seminar the participants will know the mode of operation of PID controllers and the influence on the control response when changing the parameters X_p , T_n , and T_v . The participants will generally be able to implement controller optimizations.

Target group

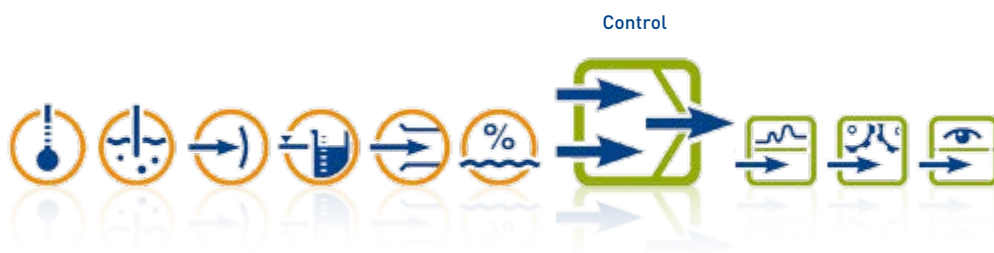
Employees involved with startup, maintenance, and servicing who would like to acquire information about the operation mode of the controller components P, I, and D.

Requirements

Basic knowledge in the field of automation technology.

Inquire here!

| | |
|-------------------|--|
| Course: | JK 700025 |
| Seminar type: | Basic course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Marcell Bräutigam Dipl.-Ing. Manfred Schleicher |
| Follow-up course: | Configuration and operation of JUMO compact controllers, p. 14 |



Configuration and operation of JUMO compact controllers

Content

This seminar provides basic knowledge about JUMO compact controllers with only a minimum of theoretical input. The following topics will be covered in the seminar through presentations and practical workshops:

- Mounting and connection
- Configuration of the devices as two-state and continuous controllers using the device front or the configuration program
- Important information about the configuration programs (connection assistant, device manager, diagnostic possibilities, etc.)
- Manual and automatic mode as well as autotuning
- "JUMO Startup" function to handle the control response
- Important functions (limit value monitoring, binary functions, ramp function, math and timer function, etc.)
- Level concept and user level
- Working with texts
- Practical session: Extensive exercises and workshops with the device

Objectives

After the seminar the participants will know the most important functions of the controller, will be able to operate the devices, and can set up typical configurations. Using additional documents, participants will be able to configure the devices for more complicated applications.

Target group

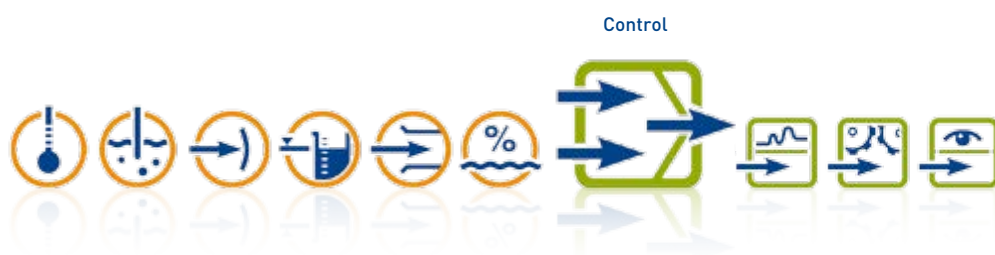
Employees who are responsible for startup and operation of JUMO compact controllers (JUMO cTRON, JUMO dTRON 300, JUMO DICON touch, and JUMO IMAGO 500).

Requirements

Basic technical knowledge and knowledge in the field of automation technology.

Inquire here!

| | |
|---------------------------|--|
| Course: | JK 703500 |
| Seminar type: | Device course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Marcell Bräutigam Dipl.-Ing. Manfred Schleicher |
| Follow-up courses: | Control technology for practitioners, p. 12 Control parameters and optimization of controllers, p. 13 |



JUMO DICON touch – two-channel process and program controller with paperless recorder

Content

The seminar covers basic principles and information on the configuration and startup of JUMO DICON touch:

- Function overview JUMO DICON touch
- Hardware and display options
- Configuration of the controller using the setup program and device front
- Startup of the controller as two-state controller and continuous controller
- Autotuning
- Program controller and recording function
- Process screens
- Timer and math function
- Limit value monitoring
- Practical session: Extensive exercises and workshops with the device

Objectives

After the seminar the participants will know the main functions of the JUMO DICON touch and will be able to operate the device according to plant-specific requirements. In addition, the participants will be able to configure control and monitoring functions.

Target group

Employees who are responsible for startup and operation of the JUMO DICON touch or who would like to get an overview of the device.

Requirements

Basic knowledge in the field of automation and control technology.

Inquire here!

| | |
|---------------------------|--|
| Course: | JK 703571 |
| Seminar type: | Device course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Marcell Bräutigam Dipl.-Ing. Manfred Schleicher |
| Follow-up courses: | Control technology for practitioners, p. 12 Control parameters and optimization of controllers, p. 13 |



JUMO paperless recorder for recording process data according to FDA 21 CFR Part 11

Content

The seminar covers basic core principles and information on the startup of paperless recorders and the relevant software components:

- Explanation of the safety concept for the whole system
- Installation of the PC software components
- Preparation of user lists and device rights files via the PC Security Manager software PCS
- Configuration of the paperless recorder using the setup program
- Electronic signature on the device and via computer
- Working with the PC evaluation software PCA3000
- Connection of the devices via RS485 and Ethernet interface, time-controlled data query with the PCA communication software PCC
- Traceability according to FDA 21 CFR Part 11 and presentation of the PC Audit Trail Manager software PCAT
- Practical session: Extensive exercises and workshops on the device and with the software components

Objectives

After the seminar the participants will be in a position to administer the system and to configure the paperless recorder JUMO LOGOSCREEN fd as well as the LOGOSCREEN 600 with extra code FDA 21 CFR Part 11 for typical applications. Time-controlled communication via Ethernet can be set up using the communication software and the data of an archive can be evaluated.

Target group

Employees who are responsible for startup, operation, and maintenance of paperless recorders. Engineers and technicians planning plants with requirements for documentation, who are responsible for the optimal usage.

Requirements

Basic technical knowledge.

Inquire here!

| | |
|----------------------|--|
| Course: | JK 706560 |
| Seminar type: | Device course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Dipl.-Ing. Manfred Walter |



Safe usage of measurement data from JUMO components with recording function

Content

The seminar covers basic core principles and information on the transfer, archiving, and evaluation of measurement data of the following JUMO products: JUMO LOGOSCREEN 600, JUMO LOGOSCREEN nt, JUMO DICON touch, JUMO IMAGO 500, JUMO AQUIS touch S/P, JUMO mTRON T.

- Installation of the software components prior to first loading of measurement data via data carrier or interface
- Safe handling of archives
- Evaluation possibilities
- Data backup
- Connection of the components to Ethernet
- Setting up a time-controlled data transfer with the PCC communication software
- Use of the web server
- Basic knowledge about data output on forms and use of standard forms
- Practical session: Extensive exercises and workshops with the evaluation and communication software

Objectives

After the seminar the participants will be able to safely handle the PC evaluation software PCA3000 and the PCA communication software PCC.

Target group

Employees who are responsible for setting up data storage and archiving for JUMO components with recording function (JUMO LOGOSCREEN 600, JUMO LOGOSCREEN nt, JUMO DICON touch, JUMO IMAGO 500, JUMO AQUIS touch S/P, JUMO mTRON T), and/or who are responsible for evaluating data (network administrators, QM employees, etc.).

Requirements

Basic technical knowledge.

Please note

The configuration of the components is not part of this seminar.

Inquire here!

| | |
|---------------|--|
| Course: | JK 706500 |
| Seminar type: | System course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Marcell Bräutigam |



Data recording and evaluation with JUMO paperless recorders – basic course

Content

The seminar provides central basic principles for startup and efficient use of the paperless recorder JUMO LOGO-SCREEN nt or JUMO LOGOSCREEN 600 as well as the relevant software components:

- Mounting and connection
- Functionality of the paperless recorder
- Configuration of the device via setup program and device front for typical applications
- Operation
- Important information about the configuration programs (connection assistant, device manager, diagnostic possibilities, etc.)
- Evaluation of measurement data using the JUMO PC evaluation software PCA3000
- Connection of the devices via Ethernet
- Time-controlled data retrieval with the JUMO PCA communication software PCC
- Practical session: Extensive exercises and workshops on the device as well as with the software components

Objectives

After the seminar the participants will be able to configure and operate the JUMO paperless recorders for typical applications. You can transfer and archive recording data securely via data carrier or Ethernet as well as carry out a secure evaluation with the PCA3000.

Target group

Employees who are responsible for starting up JUMO paperless recorders of the type JUMO LOGOSCREEN nt or JUMO LOGOSCREEN 600 or who are responsible for evaluating the recorded measurement data.

Engineers and technicians who plan plants using documentation requirements and who are responsible for their optimal project planning.

Requirements

Basic technical knowledge and knowledge in the field of automation technology.

Inquire here!

| | |
|----------------------|--|
| Course: | JK 706580 |
| Seminar type: | Device course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Marcell Bräutigam |



Measurement, control, and automation system JUMO mTRON T – basic course

Content

The seminar provides an initial overview of the system components and the project planning software of JUMO mTRON T.

■ Introduction

- System overview
- Installation and wiring

■ Configuration of the system

- Connection, configuration program, hardware arrangement, logon, and user administration
- Project planning for the recording function
- Project planning for the controller function using the example of a fixed-setpoint controller
- Setting up a program generator function
- Project extension using the PLC functionality and the PLC programming software CODESYS V3.5

■ Practical session

- Extensive exercises and workshops with the system

Objectives

After the seminar the participants will be able to operate the system as well as to plan and configure typical applications.

Target group

Employees who are responsible for startup of the JUMO mTRON T for the first time or who would like to get an overview of the system. Engineers and technicians who are responsible for the planning of plants with JUMO mTRON T and who are responsible for the optimal use of the system.

Requirements

Basic technical knowledge.

Inquire here!

| | |
|---------------------------|--|
| Course: | JK 705000 |
| Seminar type: | System course |
| Duration: | 1 day |
| Fee: | on request |
| Dates: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Thomas Diel |
| Follow-up courses: | Measurement, control, and automation system JUMO mTRON T – advanced course, p. 20 PLC programming software CODESYS V3.5 and JUMO mTRON T, p. 21 |



Measurement, control, and automation system JUMO mTRON T – advanced course

Content

The seminar provides detailed information about the system components and the project planning software of JUMO mTRON T.

- **Detailed information about the JUMO mTRON T modules**
 - Multifunction panel 840 (recording function, counter and integrator function, batch reporting, etc.)
 - Multichannel controller module
- **Additional JUMO mTRON T functionalities**
 - Program generator function
 - Binary linking
 - Limit value monitoring
 - Customer-specific linearization
 - Alarm function
 - User administration
 - Enabling of extra codes
 - Modbus master function
 - Email dispatch
- **Practical session**
 - Extensive exercises and workshops with the system

Objectives

After the seminar the participants will be able to operate the system and to prepare extensive applications.

Target group

Employees who are responsible for the startup of the system. Engineers and technicians who are responsible for the project planning of plants with JUMO mTRON T and for the optimal use of the system.

Requirements

Participation in the “JUMO mTRON T – basic course” seminar or basic experience with the JUMO mTRON T system.

Inquire here!

| | |
|--------------------------|---|
| Course: | JK 705001 |
| Seminar type: | System course |
| Duration: | 1 day |
| Fee: | on request |
| Dates: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Thomas Diel |
| Follow-up course: | PLC programming software CODESYS V3.5 and JUMO mTRON T, p. 21 |

Automation



PLC programming software CODESYS V3.5 and JUMO mTRON T

Content

The seminar provides the knowledge required for expanding JUMO mTRON T projects with PLC functionality.

- **Programming software CODESYS V3.5**
 - General process for project creation
 - Data types and declaration of variables, communication between PLC and JUMO mTRON T
 - Information about the user interface of CODESYS V3.5
 - JUMO functions in CODESYS V3.5
 - Tips and tricks for using the software
- **PLC programming**
 - Short refresher course for programming languages according to IEC 61131-3: Continuous Function Chart (CFC), Ladder Diagram (LD), and Structured Text (ST code)
- **Practical session: Extensive exercises and workshops:**
 - Exchange of variables between PLC and process screen (HMI)
 - Object control in the process screen
 - Process screen level control
 - Program selection and start via process screen
 - Batch control
 - Working with libraries

Objectives

After the seminar the participants will be able to expand the JUMO mTRON T to include PLC functionality using the programming software CODESYS V3.5.

Target group

Employees who would like to expand JUMO mTRON T through the PLC functionality using the programming software CODESYS V3.5.

Requirements

First experiences with JUMO mTRON T.

Some PLC programming experience is preferred (school, training, etc.).

Inquire here!

| | |
|--------------------------|---|
| Course: | JK 705002 |
| Seminar type: | System course |
| Duration: | 1 day |
| Fee: | on request |
| Dates: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Thomas Diel |
| Follow-up course: | Measurement, control, and automation system JUMO mTRON T – advanced course, p. 20 |



Plant visualization software JUMO SVS3000

Content

The seminar provides information about the functionality and menu structure as well as the operation and the configuration of JUMO SVS3000:

- Practical information about digital interfaces (serial interfaces and Ethernet)
- General information about data management
- Setting up of data recording
- Preparation of group screens and trends
- Working in the operating level
- Configuration of the batch reporting
- Searching for archived batch reports
- Math and timetable functions
- Practical session: Extensive exercises and workshops

Objectives

After the seminar the participants will be able to operate JUMO SVS3000 as well as to configure and parameterize the applications on their own.

Target group

All employees who would like to operate JUMO devices centrally via a computer using the JUMO SVS3000 and who want to visualize and record data.

Requirements

Basic technical knowledge.

Inquire here!

| | |
|---------------|--|
| Course: | JK 700755 |
| Seminar type: | System course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Dipl.-Ing. Manfred Schleicher Thomas Diel |

Automation



Thyristor power controller of the JUMO TYA 200 series

Content

The seminar provides basic principles about the correct device parameterization with different load types. Practical exercises will help to deepen your knowledge of the theoretical part.

- **Load connection**
 - Selection of the correct size
 - Single-phase/three-phase load
- **Load types**
 - Adaptation of the power controller to different types of loads: IR emitters, MoSi₂, and SIC heating elements
 - Smooth operation of heating elements, e.g. with R-control
- **Functionalities of the power controllers**
 - Phase-angle operation and burst-firing operation
 - Soft start and current limiting
 - Load and partial load failure control
 - Firing pulse inhibit
 - Reduction of energy costs through load optimization
 - Subordinate control loops: Stabilization of the output value due to U, U², I, I², and P control.
- **Practical session**
 - Workshop for startup of actuators

Objectives

After the seminar the participants will be able to correctly dimension thyristor power controllers, to connect them, and to start them up.

Target group

Engineers and technicians who are responsible for the project planning of plants with electrical heating. Employees who are responsible for startup and operation of JUMO TYA 200 thyristor power controllers.

Requirements

Electrotechnical education.

Inquire here!

| | |
|----------------------|--|
| Course: | JK 709000 |
| Seminar type: | Device course |
| Duration: | 1 day |
| Fee: | on request |
| Date: | on request |
| Speakers: | Andreas Kraus Dipl.-Ing. Manfred Schleicher |

Automation





Functional safety in Europe pertaining to Safety Integrity Level and the Performance Level – basic course

Content

The seminar provides an introduction about the simple start into functional safety through application-oriented practical information when dealing with the standards:

- What does functional safety mean?
- Standards, definitions, values
- Differences between SIL and PL
- Manufacturer specifications
- System structures
- Risk assessment and the tools
- Security structures
- Case study of a safety chain
- SIL-ratings according to standards
- Certificates and safety manual
- System applications and their different approaches with structures and calculations
- General information and examples for practical use
- Exchange of experience

Objectives

After the seminar the participants will have an overview of functional safety and can

- Create risk assessments
- Retrace calculations
- Establish SIL structures
- Compile documentations

Target group

Employees who want to get an initial overview of the functional safety requirements in construction and mechanical engineering.

Requirements

Basic technical knowledge.

Inquire here!

| | |
|---------------|-----------------------------|
| Course: | JK 989020 |
| Seminar type: | Basic course |
| Duration: | 1 day |
| Fee: | on request |
| Dates: | on request |
| Speaker: | Dipl.-Ing. Matthias Garbsch |



Explosion protection in Europe according to ATEX: Theoretical principles and practical implementation with equipment

Content

The seminar provides information on explosion protection measures as well as valid standards and directives in Europe.

- EU directives (ATEX)
- Device groups, zone allocation, device categories, explosion groups, and identification markings for equipment according to ATEX
- Type examination certificate
- Different ignition protection types with the focus on intrinsic safety. In addition, the following protection types are covered:
 - Increased safety
 - Pressurized enclosure
 - Flameproof enclosure
 - Protection by housing
- Use of equipment in zone 0 and separation elements
- Equipment Protection Level
- Distinctive features specific to dust applications
- Examples for the selection of equipment for different applications

Objectives

After the seminar the participants will have an overview of the explosion protection field in Europe and will be able to select JUMO equipment with ATEX approval.

Target group

Employees who would like to get an overview of explosion protection measures.

Requirements

None.

Inquire here!

| | |
|----------------------|---|
| Course: | JK 900020 |
| Seminar type: | Basic course |
| Duration: | 1 day |
| Fee: | on request |
| Dates: | on request |
| Speakers: | Dipl.-Ing. Klaus Gabriel Dipl.-Ing. Manfred Schleicher |



Exclusive and individual training courses



Can't find a date that suits you? Or would you like to provide training for several employees and save on travel expenses at the same time?

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Exclusive webinars: Are you looking for a cost-effective training that deals with a compact topic – for example the configuration and application of a JUMO component for a specific use? Our exclusive webinars offer a compact glimpse into a topic in 1-2 hours that is especially tailored for you. Your advantage: No travel expenses are necessary, making this type of online training highly efficient.



Contact us – we will be happy to answer all your questions!

Please send your inquiry to campus@jumo.net or call us at: +49 661 6003-2109.

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Webinars

The following section provides an overview of [our free JUMO webinars](#).

Essentially, a webinar is an online seminar. All participants and lecturers enter a virtual seminar room. The speaker splits his/her screen to enable all participants to see his/her presentation. At the same time, all participants are connected using the integrated audio conference, enabling them to listen to the speaker. In addition, he/she can turn on his/her webcam to enable all participants to see him/her. The participants can also ask questions during the webinar.

Key advantages for you:

JUMO webinars are free of charge. Also, you can participate comfortably from your work station without traveling at all. All you need is a computer with Internet access and a telephone or headset for your computer.

► All webinars at a glance

Temperature

Practical basic principles of electrical temperature measurement

The webinar provides an overview of how electrical temperature probes are used:

- Operation of RTD temperature probes and thermocouples
- Connection of electrical temperature probes
- Tolerance classes of RTD temperature probes and thermocouples
- Compensating cable, cold junction temperature, and internal temperature compensation (thermocouples)
- Linearization for field devices
- Selected temperature probes from JUMO

Target group: All employees using electrical temperature probes who require practical information about this topic.

Tue., Mar. 13, 2018
Wed., Sep. 05, 2018
Duration: 1 hour (3-4 PM CET)
Speaker: Manfred Schleicher

→ [Sign up here!](#)

Liquid analysis

Basic principles for pH measurement and use of measurement technology

The webinar conveys central information dealing with the safe use of measurement technology for pH measurement:

- Definition of pH value and structure of a combination electrode
- Selection criteria for combination electrodes
- Example for the initial startup of a pH combination electrode with transmitter:
 - Mounting in a fitting
 - Wiring
 - Configuration of transmitters
 - Calibration of the measuring chains
 - Calibration logbook
- Storage and cleaning of pH combination electrodes

Target group: All employees who carry out pH measurements and who require practical information about this topic.

Tue., Jan. 16, 2018
Tue., Sep. 18, 2018
Duration: 1 hour (3-4 PM CET)
Speaker: Manfred Schleicher

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<http://webinars.jumo-en.info>

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Liquid analysis

Basic principles of redox potential measurement and use of measurement technology

The webinar conveys central information dealing with the safe use of measurement technology for redox potential measurement:

- Basic principles
- Application examples
- Structure of redox combination electrodes
- Connection and transmitter
- Configuration, test solution, and calibration
- Storage and cleaning of combination electrodes
- General information about the operation of the combination electrodes

Target group: All employees who carry out redox potential measurement and who require practical information about this topic.

Wed., Jan. 17, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

→ [Sign up here!](#)

Basic principles of chlorine measurement and use of measurement technology

The webinar conveys practical basic principles for measuring free chlorine and demonstrates the handling of available measurement technology:

- Chlorine as a disinfectant, measuring of chlorine concentration
- The JUMO sensor for measuring free chlorine and additional membrane-covered sensors
- Startup of the sensors, distinctive features specific to calibration and maintenance
- Dependence of chlorine measurement on the pH value and the procedure for a fluctuating pH value
- Overview of the chlorine sensors from JUMO

Target group: All employees who carry out chlorine measurements and who require practical information about this topic.

Thu., Jan. 18, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

→ [Sign up here!](#)

Basic principles of measuring dissolved oxygen and use of measurement technology

The webinar conveys practical basic principles for measuring dissolved oxygen and demonstrates the handling of the JUMO ecoLine O-DO sensor for dissolved oxygen:

- Basic principles of oxygen measurement
- General information about verification/calibration of the systems
- JUMO ecoLine O-DO oxygen sensor and the transmitters
- Operating principle JUMO ecoLine O-DO and initial startup
- Fittings
- Distinctive features specific to calibration

Target group: All employees who carry out oxygen measurement and who require practical information about this topic.

Tue., Jan. 23, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

→ [Sign up here!](#)

Basic principles of turbidity measurement and use of measurement technology

The webinar conveys practical basic principles for turbidity measurement and demonstrates the handling of available measurement technology:

- Basic principles of turbidity measurement
- General information about the turbidity sensor, fittings, and combinable transmitters
- Initial startup with JUMO AQUIS 500 RS
- Applying JUMO AQUIS touch S/AQUIS touch P and JUMO mTRON T
- Producing a test/calibration solution
- Test and calibration of measuring chain/maintenance

Target group: All employees who carry out turbidity measurement and who require practical information about this topic.

Thu., Jan. 25, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

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Liquid analysis

Connection of JUMO digiLine sensor technology to a JUMO AQUIS touch S/P

The webinar shows the connection of JUMO digiLine sensor technology to a JUMO AQUIS touch S/P and demonstrates the system's possibilities:

- Introduction of the JUMO digiLine system for measuring the pH value, redox potential, and temperature
- Connection of additional sensors for measuring disinfection measurands (chlorine dioxide, ozone, etc.), oxygen and turbidity
- Preparation of the JUMO digiLine sensor technology with Digital Sensor Management (DSM)
- Wiring using RS485 interface (sensor technology – JUMO AQUIS touch S/P)
- Configuration of JUMO digiLine sensor technology using the JUMO AQUIS touch S/P
- Information about sensor allocation
- Available options with the DSM

Target group: All employees who are planning systems with multiple measuring points for electrochemical measurands and/or who would like to learn more about JUMO digiLine.

Tue., Jan. 30, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

[➔ Sign up here!](#)

Pressure

Electronic pressure measurement technology – pressure types, sensor technology, and transmitters

This webinar provides important information on how to get started with pressure measurement technology. You will get an overview of the following topics:

- General information on pressure and units
- Difference between absolute, relative, and differential pressure
- Measuring principles and sensor technology
- Explanation of the accuracy specifications
- Pressure transmitter and applications

Target group: Employees in the area of plant engineering, maintenance, planning, or similar who are responsible for the startup and maintenance of these technologies or who are planning the dimensioning of measuring points.

Tue., Feb. 06, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Marcell Bräutigam

[➔ Sign up here!](#)

Level

Hydrostatic level measurement – basic principles and startup

This webinar provides important information on how to get started with hydrostatic level measurement by providing an overview of the following topics:

- Hydrostatic measuring principle
- Pressure transmitter and measurement methods
- Scaling of the output signal
- Differential pressure measurement with diaphragm seals
- Case studies of measuring accuracy

Target group: Employees in the area of plant engineering, maintenance, planning, or similar who are responsible for the startup and maintenance of these measuring points or who are planning the dimensioning of measuring points.

Wed., Feb. 7, 2018

Thu., Sep. 13, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Marcell Bräutigam

[➔ Sign up here!](#)



<http://webinars.jumo-en.info>

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Flow

Flow measurement according to the differential pressure method

The webinar informs about the operating principle and startup of a flow measuring point using the differential pressure method:

- Physical basic principles
- General information about the primary elements
- General information about installation and mounting
- Startup of the differential pressure transmitter

Target group: Employees in the area of plant engineering, maintenance, planning, or similar who are responsible for the startup and maintenance of these technologies or who are planning the dimensioning of measuring points.

Thu., Apr. 12, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Marcell Bräutigam

→ [Sign up here!](#)

Industrial flow measurement technology – basic principles and measurement methods

The webinar conveys important basic principles and supports the employee's introduction to measurement technology:

- Definition, units, and flow profiles
- Interpretation and accuracy
- Market overview and JUMO product portfolio
- Operating principles of the following measuring principles:
 - Magnetic-inductive
 - Paddle-wheel flow sensors
 - Differential pressure method

Target group: Employees in the area of plant engineering, maintenance, planning, or similar who are responsible for the startup and maintenance of these technologies or who are planning the dimensioning of measuring points.

Tue., Nov. 06, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Marcell Bräutigam

→ [Sign up here!](#)



Humidity

Introduction to humidity measurement – basic physical principles and overview of measurement methods

The webinar conveys basic information for measuring humidity and provides an overview of the following topics:

- Connection between humidity and temperature
- Overview of the common measurands
- Functional description of the different measurement methods
- General information about calibration

Target group: Employees in the field of plant engineering, maintenance, planning, or similar who are responsible for startup and maintenance of humidity measuring points, or who are planning the dimensioning of them.

Wed., Feb. 14, 2018

Wed., Sep. 12, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Marcell Bräutigam

→ [Sign up here!](#)



Control

Using cascade control

The webinar demonstrates the reasons for introducing cascaded control loops and shows the application of this structure:

- Structure and operating principle of the cascade control
- Configuration of the two controllers, optimization, and handling
- Reasons for the introduction for a cascade:
 - Limiting the power in the control process
 - Compensating disturbances
 - Controlling the process or achieving a higher control quality on paths of a higher order

Target group: Users who want to implement cascade controls or who want to learn more about the topic.

Tue., Feb. 20, 2018

Tue., Nov. 13, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

→ [Sign up here!](#)



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Control

Basic principles for using thermostats based on the example of the JUMO heatTHERM series

The webinar provides an overview of how thermostats are used using the JUMO heatTHERM series as an example:

- Setup and operating principle of thermostats
- Specific features of thermostats when used as temperature controllers, monitors, and limiters
- Safety temperature monitor/limiter versions
- Switching point accuracy, calibration of the switching point (rising or falling), hysteresis
- General information about the application
- Introduction to integrated and surface-mounted thermostats from the JUMO heatTHERM series

Target group: All employees who use thermostats.

Thu., Feb 22, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

→ [Sign up here!](#)

How to enhance efficiency by safely applying autotuning in JUMO controllers

Secure use of autotuning allows control parameters of JUMO components to be optimized with little effort. The webinar provides an overview of the following topics:

- The closed control loop
- Operating principle of autotuning (oscillation method)
- Important points to consider during autotuning (plant setpoint, operation conditions, etc.)
Specific autotuning features for continuous controllers, two-state controllers, and three-state controllers
- Limits of the oscillation method and presentation of the step response method

Target group: Users of JUMO components who would like to calculate control parameters with autotuning in a time-efficient way and who are generally interested in this topic.

Thu., Apr. 26, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

→ [Sign up here!](#)

Recording

JUMO PC Security Manager software PCS

The PC security manager software PCS is used to administrate systems with JUMO LOGOSCREEN fd and JUMO LOGOSCREEN 600 (with Code 888: FDA 21 CFR Part 11).

The webinar demonstrates the procedure with the software:

- Installation of the PCS and additional software products
- User lists wizard
- Setting up system (create users, granting rights, etc.)
- Transfer device rights file to the device, resetting user list
- User login and status, changing the status through administrator

Target group: Employees who administrate the systems with JUMO LOGOSCREEN fd or JUMO LOGOSCREEN 600 (with code 888: FDA 21 CFR Part 11).

Tue., May 08, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

→ [Sign up here!](#)

Automation

JUMO transmitter: Connection, configuration, handling

The webinar conveys practical knowledge for the selection, connection, and configuration of transmitters:

- Basic principles of measurement inputs and standard signals
- Connection of two/three/four wire transmitters
- Scaling settings
- Customer-specific linearization

Target group: Employees in the field of plant engineering, maintenance, planning, or similar who are responsible for the startup of transmitters or who plan their use.

Thu., Feb. 01, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Marcell Bräutigam

→ [Sign up here!](#)



<http://webinars.jumo-en.info>

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Automation

JUMO mTRON T – process engineering application

The process engineering application allows the process steps to be predefined in JUMO mTRON T.

The webinar shows what is possible with the application:

- Program generators and program generators for process engineering
- Operation and use of a program generator
- Program creation, process contacts, and operating contacts
- Open and adjust application
- Designation of the process contacts and program setpoints
- Definition of the process steps and creation of a program via setup
- Additional functionalities of the application

Target group: All employees who use JUMO mTRON T and who want to predefine process steps.

Tue., Feb. 27, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

[→ Sign up here!](#)

JUMO functions in CODESYS applications from JUMO mTRON T

JUMO functions in CODESYS enable control of process screens and batch masks from the PLC.

The webinar provides an overview of the possibilities:

- Accessing the JUMO functions in CODESYS
- Color codes and counting method
- An example of a JUMO function for controlling the visibility in a process screen
- Functions for process screen control
- Functions for batch control
- Other JUMO functions

Target group: All employees who use JUMO mTRON T and who want to use JUMO functions in CODESYS.

Wed., Feb. 28, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

[→ Sign up here!](#)

Modbus (part 1): Basic principles and example configuration

The webinar demonstrates the data selection and the device configuration for communication via Modbus and Modbus/TCP:

- Basic principles of Modbus
- Network topology
- Configuration of the interfaces RS485/232 and TCP/IP
- Compilation of the frames for reading and writing

Target group: All employees who want to connect JUMO devices via Modbus.

Wed., May 02, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Marcell Bräutigam

[→ Sign up here!](#)

Modbus (part 2): Connection of Modbus slaves to the PLC of JUMO mTRON T

The webinar demonstrates how the connection of Modbus slaves is established in CODESYS:

- Modbus protocol structure and additional basic principles
- Create interface, Modbus master, and Modbus slave in CODESYS
- Transmission of BOOL and REAL values
- Compilation of process variables in frames (slave)
- Reset of slave interface and triggered transfer

Target group: All employees who want to connect Modbus devices via the RS485 interface directly to the PLC of JUMO mTRON T.

Thu., May 03, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

[→ Sign up here!](#)

JUMO thyristor power controller of the TYA series – functions and controls for three-phase operation

General information about the selection of power controllers:

- Functions of the TYA 201/TYA 202 and TYA 203 device series:
 - Configuration program
 - Monitoring of the heating elements (current limiting during soft start, partial load failure control, and R-control)
 - Alpha start for transformer loads
 - Dual energy management
- Power controller for three-phase operation
- Introduction of successful applications by the product manager and practical tips gained from experience

Target group: All employees who use type JUMO TYA thyristor power controllers or who want to find out more information.

Tue., Jun. 19, 2018

Duration: 1 hour (3-4 PM CET)

Speaker: Manfred Schleicher

[→ Sign up here!](#)

Monitoring

Application of JUMO safetyM STB/STW safety temperature limiters and monitors

The webinar introduces the JUMO safetyM STB/STW and conveys important information for the implementation of compact safety controls:

- DIN EN 14597
- Definition of temperature monitors and limiters as well as safety temperature monitors and limiters
- Overview of JUMO safetyM
- SIL and SIL-certified measuring chains from JUMO
- JUMO safetyM STB/STW hardware and configuration
- Comparison between SIL-classified measuring chains with safety PLC and JUMO safetyM

Target group: All employees who are responsible for implementing safety controls.

Thu., Jun. 07, 2018
Duration: 1 hour (3-4 PM CET)
Speaker: Manfred Schleicher

[→ Sign up here!](#)

General topics

Basic principles of explosion protection (ATEX) and the use of JUMO equipment with the protection type intrinsically safe

The webinar gives an overview of the basic principles of explosion protection and the correct use of JUMO equipment with the protection type intrinsically safe:

- The explosion triangle
- Device groups, zone classification, and device categories
- Explosion groups and temperature classes
- Typical ATEX identification marking for JUMO equipment
- Examination certificate and specifications by the operator
- Applied ignition protection types from JUMO based on the example of intrinsic safety (i)
- Other application examples for JUMO equipment in the operating mode "intrinsically safe"

Target group: All employees who are planning the use of sensor technology in potentially explosive areas.

Thu., Feb. 15, 2018
Wed., Oct. 17, 2018
Duration: 1 hour (3-4 PM CET)
Speaker: Manfred Schleicher

[→ Sign up here!](#)

Connection of JUMO IO-Link sensors

The webinar demonstrates the operating principle and the connection of IO-Link sensors:

- Basic principles of IO-Link
- System overview and components
- Project planning
- Startup

Target group: Operators and planners who want to implement an IO-Link connection or who want to learn more about the topic.

Thu., Mar. 01, 2018
Wed., Sep. 19, 2018
Duration: 1 hour (3-4 PM CET)
Speaker: Marcell Bräutigam

[→ Sign up here!](#)

Industries

Industrial heat treatment according to AMS2750 and CQI-9

The webinar provides an overview of the background and technical aspects for the application of the specifications according to AMS2750 and CQI-9:

- Source and application areas of the specification according to AMS2750 and CQI-9
- Using examples, the most important measurement technology criteria are explained.
For example:
 - Selection of thermocouples and instrumentation
 - Allowed tolerance limits
 - Calibration intervals, etc.

Target group: Technical personnel, operators of heat treatment systems, employees in the quality assurance department, and anyone supplying parts for the aviation or automotive industry, which fall under the guidelines.

Tue., Jun. 05, 2018
Duration: 1 hour (3-4 PM CET)
Speaker: Jochen Darenberg

[→ Sign up here!](#)



<http://webinars.jumo-en.info>

Sign up for free!

E-learning courses

The following section provides an overview of [our free e-learning and webinar recordings](#).

For example, you can have a typical startup of JUMO components demonstrated in a succinct and simple manner through an [e-learning course](#). Or use videos for a quick introduction to fundamental topics such as individual measurands.

If you want to go into greater depth with a topic, we recommend our [webinar recordings](#), which are also free of charge: Within about an hour you will gain a deeper insight into various topics dealing with measurement and control technology or into JUMO device technology.

Key advantages for you:

You can always access our free e-learning courses from anywhere. That way, you have all the flexibility you need to suit your schedule.

Our product range is being expanded continuously – all e-learning courses can be found at <http://elearning.jumo-en.info>.

► All e-learning courses at a glance



Temperature

- Startup of RTD temperature probes (e-learning)
- Startup of thermocouples (e-learning)



Liquid analysis

- Practical basic principles of conductive conductivity measurement (webinar recording)
- Conductivity measurement (e-learning)
- Startup of a JUMO AQUIS touch S/P with sensors for pH and conductivity measurement (webinar recording)
- pH measurement (e-learning)
- Redox potential measurement (e-learning)



Flow

- Basics and startup of JUMO flow measurement technology (e-learning)
- Flow measurement with the JUMO flowTRANS MAG (webinar recording)



<http://elearning.jumo-en.info>

Control

- Startup of a JUMO controller (e-learning)
- Startup of control loops with JUMO DICON touch (webinar recording)
- Configuration of the controller function for continuous and two-state controllers (webinar recording)
- Configuration of the controller function for three-state, three-state modulating, and position controllers (webinar recording)

Recording

- Connection and startup of a JUMO LOGOSCREEN 600 device (e-learning)
- JUMO LOGOSCREEN 600 – startup, wiring, configuration, data transmission, and evaluation (webinar recording)
- Startup of a JUMO LOGOSCREEN nt (e-learning)
- PC evaluation software PCA3000 (e-learning)
- Form function of the PCA3000 (e-learning)
- JUMO PCA communication software PCC (e-learning)

Automation

- JUMO mTRON T: Startup of a one-channel controller (e-learning)
- JUMO mTRON T: Overview and setup of the recording function (e-learning)
- JUMO mTRON T: Modbus and Modbus TCP master (webinar recording)
- JUMO mTRON T: Using program generators (webinar recording)
- JUMO mTRON T: Process engineering application (webinar recording)
- Applying the JUMO mTRON T: Establishing a fixed-setpoint controller and a recording (webinar recording)
- Expansion of JUMO mTRON T applications with CODESYS V3.5 (webinar recording)
- CODESYS: Basic principles about program creation based on the example of CFC (Continuous Function Chart) (webinar recording)
- Startup of a JUMO TYA 201 thyristor power controller (webinar recording)
- Basic principles and startup of a JUMO thyristor power controller (e-learning)
- Project creation with the visualization software JUMO SVS3000 (webinar recording)
- Plant visualization software with batch-related data reporting SVS3000: Connection of JUMO dTRON 300 to JUMO SVS3000 (e-learning)
- Use of math and logic function in JUMO components (webinar recording)

General topics

- Connection of JUMO device technology to Ethernet and RS interfaces (e-learning)
- JUMO configuration programs (e-learning)
- Wireless temperature measurement for industrial applications – Wtrans configuration (e-learning)
- Wireless transfer of the measurement parameters temperature, pressure, CO₂, and humidity with the JUMO Wtrans system (webinar recording)
- Process screen creation based on the example of the JUMO DICON touch (webinar recording)



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Technical literature

Up-to-date technical knowledge for beginners and practitioners

With our extensive range of technical literature in the field of measurement and control technology, we offer insights into the basic principles for beginners as well as useful information for more experienced users.

Our technical literature is designed to convey all topics in a way that is easy to understand. As a result, all of these books contain a lot of **practical examples** and illustrations. The content is clearly structured and can for the most part be applied to **products of other manufacturers**.

All JUMO authors possess decades of experience as well as comprehensive knowledge in their area of expertise. This is one of the reasons why our technical literature occupies a distinctive place in the range of teaching materials at various technology institutes and universities.

Our technical literature is available as paperback books and can be ordered directly on our website. Alternatively you can download the PDF file free of charge at <http://literature.jumo-en.info>.

► All technical literature at a glance

Temperature

- Electrical Temperature Measurement with Thermocouples and RTD Temperature Probes (FAS 146)
- Error Analysis of a Temperature Measurement System with Sample Calculations (FAS 625) ► **UPDATED EDITION!**

Liquid analysis

- Information on High-Purity Water (FAS 614)
- Information on conductivity measurement, concentration, TDS (FAS 624)
- Information on redox voltage measurement (FAS 615)
- Information on pH measurement (FAS 622)
- Information on measuring ammonia in water (FAS 631)
- Information on the amperometric measurement of free chlorine, chlorine dioxide and ozone in water (FAS 619)
- Information on the Measurement of Hydrogen Peroxide and Peracetic Acid (FAS 628)

Pressure

- Electronic pressure measurement technology (FAS 606) **NEW**

Control

- Control Engineering – Basic principles and tips for practitioners (FAS 525)

Automation

- Thyristor Power Controllers – basics and tips for the practitioner (FAS 620)

General topics

- Functional Safety – Safety Integrity Level (FAS 630)
- Explosion Protection in Europe – Electrical equipment, basics, rules, standards (FAS 547) ► **UPDATED EDITION!**



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Our JUMO Campus team will be happy to assist you and answer all your questions about the seminar organization. Please contact us by phone at the numbers mentioned above or via email to campus@jumo.net.



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