



More than **sensors + automation**



Recording

Innovative solutions for the highest requirements



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Dear Reader,

To record, register, archive, and evaluate process data, devices are used in the industrial sector that can generally be described as recorders or measured value printers.

A special group of devices here is paperless recorders in which the traditional recorder paper is replaced by a TFT color graphics screen and an electronic data storage unit.

JUMO LOGOSCREEN paperless recorders belong to this group of devices and mostly fulfill the needs of the users in terms of faster and more secure data recording, tamper-proof archiving and, convenient evaluation of data at the PC.

With its products from the field of recording, JUMO has been offering established solutions for a secure and reliable monitoring of plants and production processes for decades.

How do we do it? Through long-standing experience and expertise: because for more than 60 years JUMO has been one of the leading manufacturers in the field of measurement and control technology and consequently it is also a professional partner for recording. We place great value on regular new developments, constant improvement of existing products, and on increasingly economic production methods – because only this path allows us to achieve the highest degree of innovation for you.

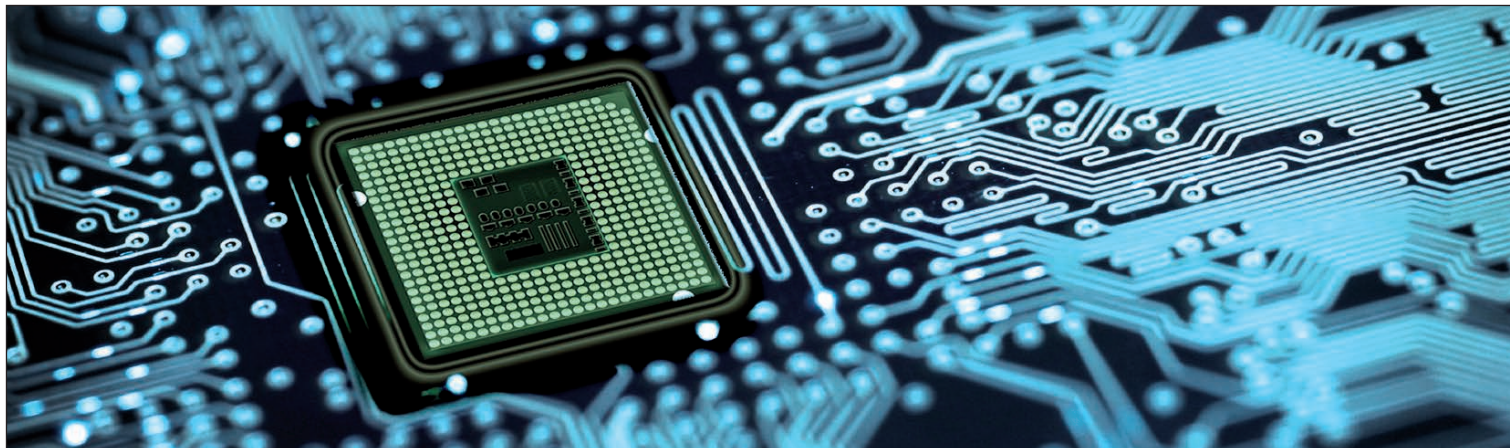
This brochure provides an overview of JUMO's products and systems from the field of recording.

Detailed information concerning our products can be found using the given type/product group number at www.jumo.net.

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Recording

Today, recording throughout the process is an essential part of many production processes. For on-site documentation, JUMO offers you a reliable paperless process data recording with the paperless recorder family JUMO LOGOSCREEN.

In paperless recording all devices stand out due to their easy retrieval and fast evaluation of the recorded data – due to integrated lifecycle data management.

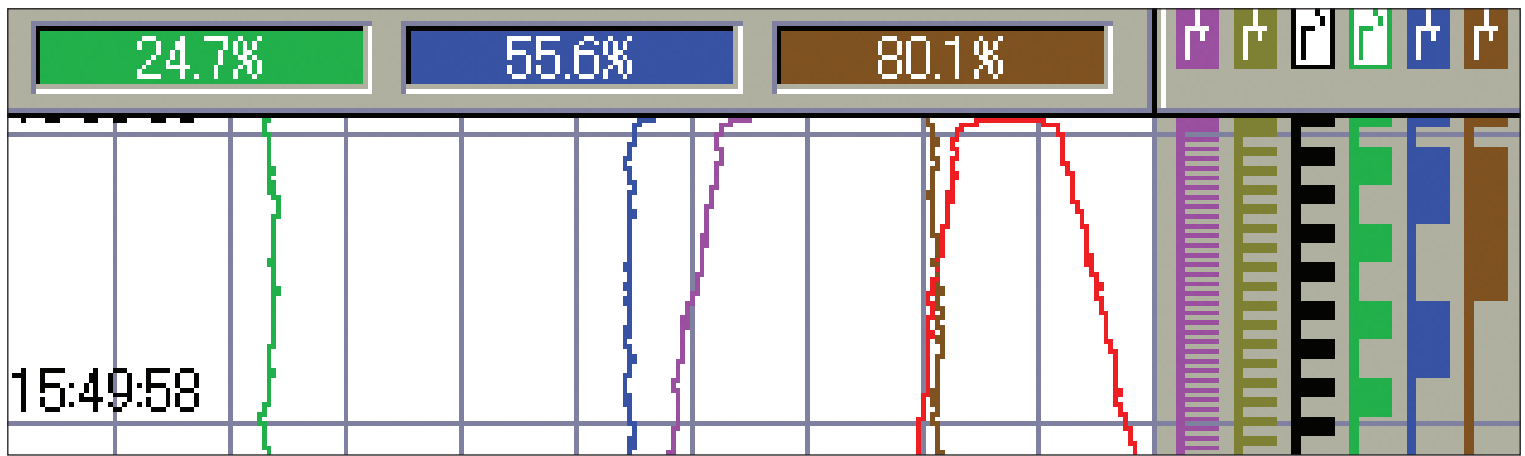


The most important branches

Paperless recorders replace conventional recorders in many fields of process and process measurement technology. Among other things they are used in chemical produc-

tion, power plants, water and wastewater engineering, as well as plant and apparatus engineering.





Paperless recorder

The JUMO LOGOSCREEN paperless recorders offer you the full range of options for recording your process data. From the simplest paperless recorders to a complete automation system with integrated measured data recording, JUMO can offer you the right solution for every task.



Paperless recorder

LOGOSCREEN 500cf was designed as a complete replacement for paper recorders and is the basic device in the JUMO paperless recorder series. It has a maximum of 6 configurable measuring inputs, a 5-inch TFT color graphics screen, as well as the option to monitor limit values and a built-in network connection.

LOGOSCREEN nt/fd fulfills demanding recording tasks such as batch reporting, combining process data math and logic, it can visualize data online by Web server, and the "fd" version fulfills the requirements of FDA 21 CFR Part 11 concerning electronic recording of process data.

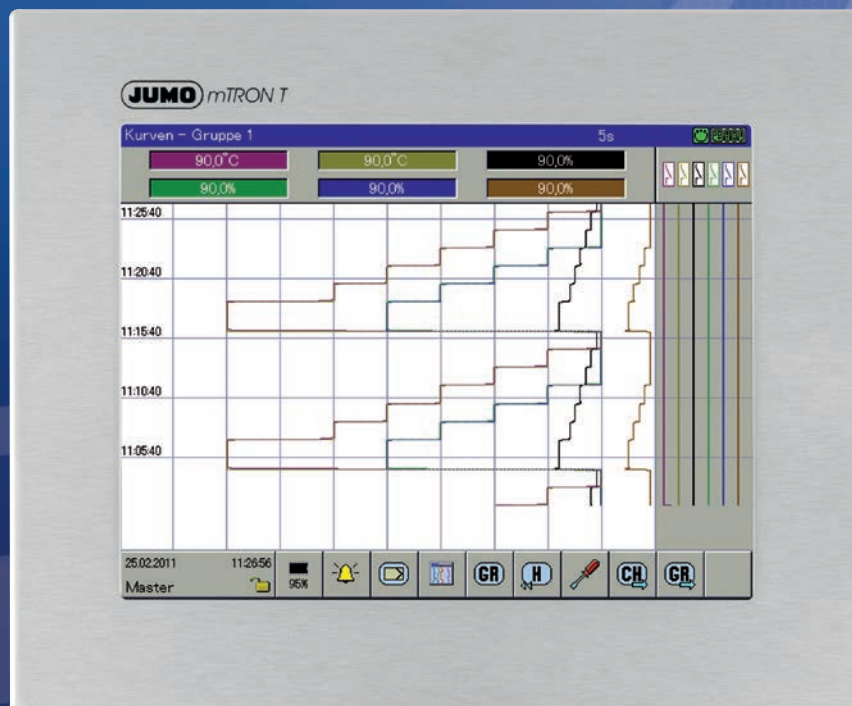


Technical data	Designation	JUMO LOGOSCREEN 500 cf	JUMO LOGOSCREEN nt	JUMO LOGOSCREEN fd
	Data sheet	706510	706581	706585
	Display	5-inch TFT color graphics screen	5.5-inch TFT color graphics screen	
	Operation	Keys	Rotary knob	Sensor control panel
	Front panel	Die-cast zinc with door	Die-cast zinc/stainless steel	
	Protection type on the front	IP54, IP65 (optional)	IP65	
	Measuring inputs	3 or 6 analog inputs, measuring input for RTD temperature probe, thermocouple, current signal, voltage signal (standard signal)	3/6/9/12/15/18 analog inputs, measuring input for RTD temperature probe, thermocouple, current signal, voltage signal (standard signal)	
	Memory cycles	1 s to 32 000 s	125 ms to 32 000 s	
	Internal memory	Up to 350 000 measured values	256 MB	
	External storage media	CF memory card	CF memory card, USB memory stick	USB memory stick
	Relay (changeover contact)	3 (optional)	1 (standard), 6 more (optional)	
	Power supply	AC/DC 20 to 53 V, 48 to 63 Hz, AC 110 to 240 V, 48 to 63 Hz	AC 100 to 240 V, 48 to 63 Hz, AC/DC 20 to 30 V, 48 to 63 Hz	
	Interfaces	RS232/485 (optional), Ethernet (optional)	RS232/485 (optional), RS232 for barcode reader, Ethernet, PROFIBUS-DP (optional), USB device/host	
	Special features	Lifecycle data management, Web server function for process value display, counter/integrator, as well as math/logic function (optional)	Lifecycle data management, Web server function with visualization like on the device, batch reporting of up to 3 batches simultaneously, counter/integrator function, math/logic function (optional)	
	Approvals	GOST, cULus, "milk approval"		Ex, cULus, FDA-compliant according to 21 CFR Part 11 Identification marking as per ATEX: II 2G Ex px IIC II 2D Ex pD 21 IP65



Measured value recording system JUMO mTRON T

JUMO mTRON T has a module construction and uses an Ethernet-based system bus and an integrated PLC – even for decentralized automation tasks. The measuring, control, and automation system can be used universally and combines JUMO's comprehensive process know-how with a simple, application-oriented, and user-friendly configuration concept.





JUMO measured value recording system – JUMO mTRON

The measured value recording system mTRON T is made up of a central processing unit (CPU) type 705001, a multifunction panel (HMI) type 705060, as well as controller and input/output modules (i.O modules). Up to 30 i.O modules can be connected per CPU. A router module (type 705040) is available for the decentrality. The system has a voltage supply of DC 24V. With

the recording function in the multifunction panel (HMI), up to 54 analog and digital measured values can be recorded. If more than 54 analog and digital process values are to be recorded/protocolled then the plant visualization software JUMO SVS3000 (type 700755) is used to carry out this task.

Modules	Analog input module 4-channel	Analog input module 8-channel	Digital input/output module
Type	705020	705021	705030
Measuring inputs	4 universal analog inputs 1 digital input Universal analog inputs for RTD temperature probe, thermocouple, and standard signals	8 analog inputs for RTD temperature probes in 2-wire circuit 1 digital input	12 channels that can be configured individually as DC 24V digital inputs or DC 24V digital outputs/max. 500 mA
Interfaces	As standard (in CPU and HMI), a USB interface (setup), a LAN connection (Ethernet) and two system bus connections are available. As an option (in CPU and HMI), up to two interfaces can be used for fieldbus applications. Furthermore, USB host interfaces (e.g. for a USB stick) are available in HMI.		
Special features	HMI with recording function for max. 9 groups with 6 analog and 6 digital inputs. For each recording group a batch reporting is available. Batch data can be entered by touchscreen or imported by interface (e.g. by barcode scanner). Integrated Web server, math-function in the optional controller modules, PLC CODESYS in the central processing unit for the monitoring of measuring signals, and further calculations		



JUMO mTRON T – Your System

The scalable measuring, control, and automation system

System layout

JUMO mTRON T is modularly designed and uses an Ethernet-based system bus and integrated PLC, even for non-centralized automation tasks. The universal measuring, control, and automation system combines JUMO's extensive process know-how with a simple, application-oriented, and user-friendly configuration concept.

The core element of JUMO mTRON T is the **central processing unit** with a process image for up to 30 input/output modules. The CPU has higher-level communication interfaces including web server. The system has a PLC (CODESYS V3) for individual control applications, program generator, and limit value monitoring functions as well as math and logic modules.

The following components are available as **input/output modules**: the **four-channel analog input module** with four electrically isolated universal analog inputs for thermocouples, resistance thermometers, and standard signals. These modules enable precise recording and digitizing of process variables with the same hardware which simplifies planning, resource management, and stockkeeping. **Multichannel controller modules** support up to four independent PID control loops with a fast cycle time and proven control algorithm without placing any load on the central unit. The system allows for simultaneous operation of up to 120 control loops and meets the needs of demanding control processes.

Optional slots can be used to extend and adapt the inputs and outputs of each controller module individually. The **multifunction panel** provides visualization of data as well as convenient operation of the controller and program generators. User-dependent access to parameter and configuration data of the overall system is also possible. Recording functions of a high-quality paperless recorder, including web server, are implemented as a special feature. Proven PC programs with standard predefined screen templates are available for reading and evaluating historical data.

A setup program is used for **hardware and software configuration** as well as project design for control tasks and recording measurement values. Users can create their own highly efficient automation solutions with CODESYS editors in accordance with IEC 61131-3. The entire application is recorded in a single project file.

Com 1
RS422/485 or RS232,
Modbus master/slave

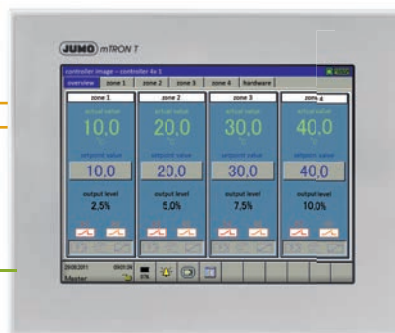
Com 2
RS422/485 or RS232,
Modbus master/slave
or PROFIBUS-DP slave

Expansion of
system bus



LAN

System bus



Com 1
RS422/485 or RS232,
Modbus master/slave
connection
Barcode scanner

Com 2
RS422/485 or RS232,
Modbus master/slave

USB
Host and device

- Web browser
- Setup program
- PCA3000 PC evaluation software
- PCA communication software PCC
- Plant visualization software SVS3000
- CODESYS programming system

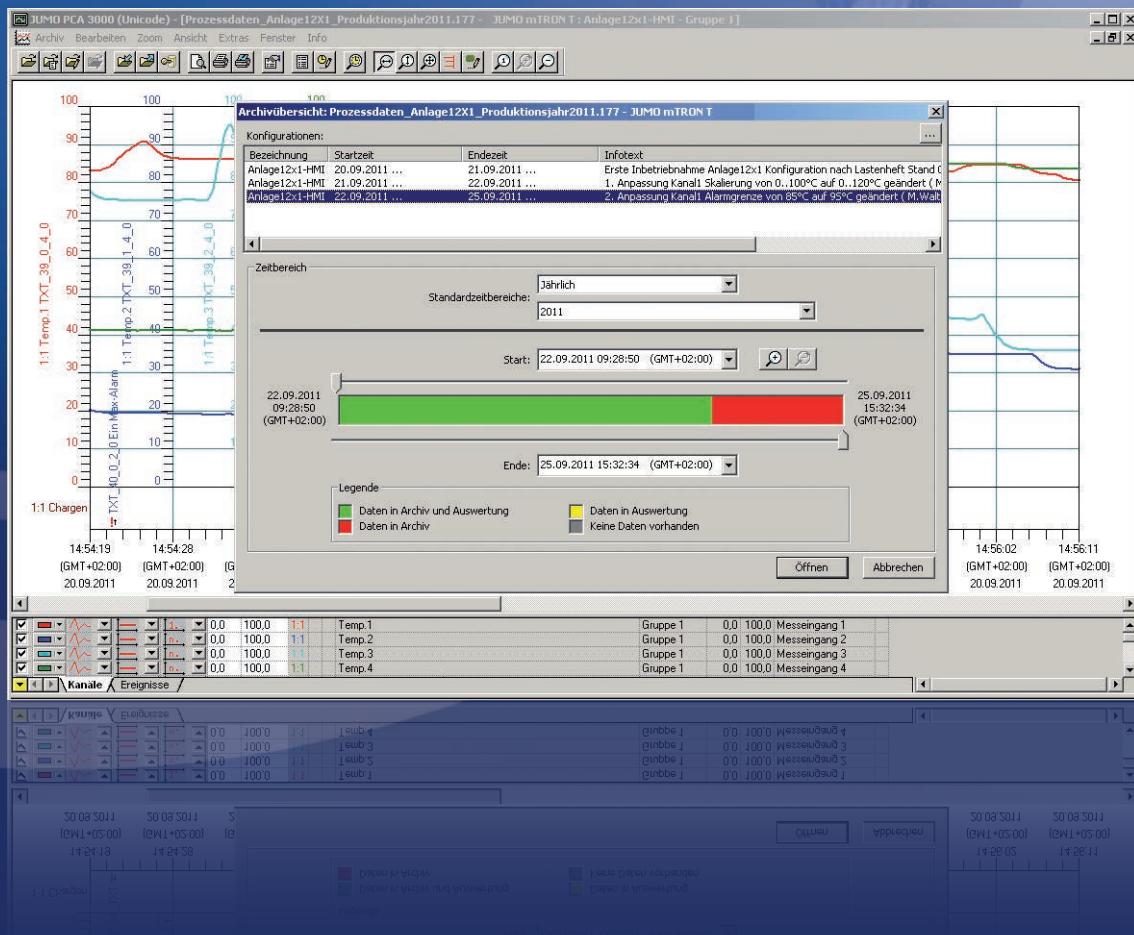
Expansion of
system bus



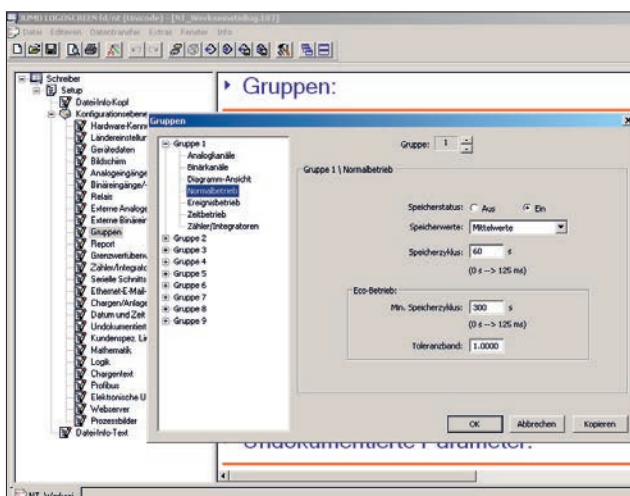


Software

For all JUMO paperless recorders PC software components are available for configuration, communication, and data evaluation. Simple operation, fast evaluation, and secure archiving of measured data are the criteria that define this software.



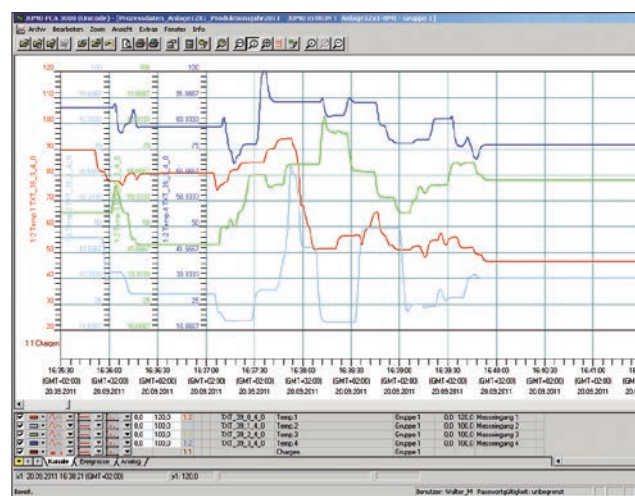
PC software components



Setup program

You can use the setup program to conveniently carry out project design and configuration of the paperless recorder on your PC:

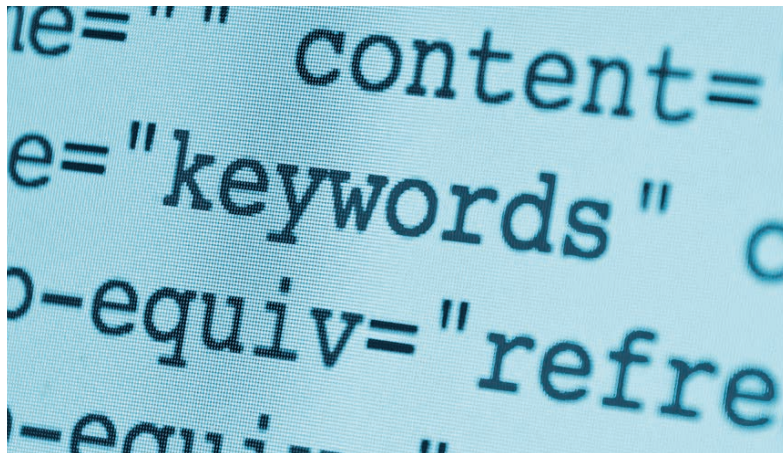
- User-friendly configuration, parameterization, and commissioning
- Teleservice function (display of the process data)
- Process screen editor
- Convenient printout of the configuration for documentation purposes



PC evaluation software PCA3000

The professional evaluation software can be used for administration, archiving, visualization, and evaluation of the historical process data (measured data, batch data, messages ...). The process data can be imported by CF card, USB memory stick, or made available by the software PCC.

- Data memory: storage and archiving of all process data that is clearly and simply organized in one data file
- Data backup: archived data can be directly read and visualized from the CD-ROM/DVD
- Data export: with PCA3000 form issued in a wide range of formats (CSV, HTML, PDF)
- Communication: the communication software PCC that is ideally geared towards PCA3000 enables the convenient reading of data via interface and modem



PC software components

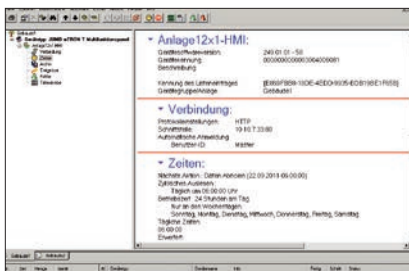


Figure 1



Figure 2

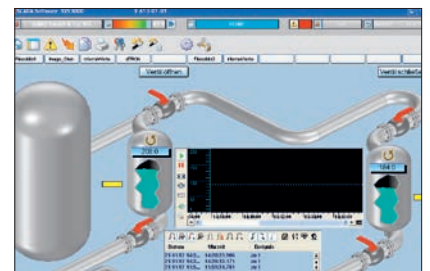


Figure 3

PCA communication software PCC

The communication software PCC that is ideally geared towards PCA3000 enables the convenient reading of data via Ethernet, RS485 interface, or modem.

Features (Figure 1):

- Data memory: storage and archiving of all process data that is clearly and simply organized in one data file
- Time-controlled automatic reading and archiving of measured data on hard disk drive or network server
- Automatic time synchronization of the connected paperless recorders
- Teleservice function (display of the process data)
- Can be launched as a Windows service

Plant visualization software SVS3000

The plant visualization software SVS3000 with batch-related data reporting and evaluation enables an efficient operation, visualization, and documentation. Pre-programmed graphical elements considerably shorten the application creation process. Variants are available for 75, 250, 1000, or 5000 process variables.

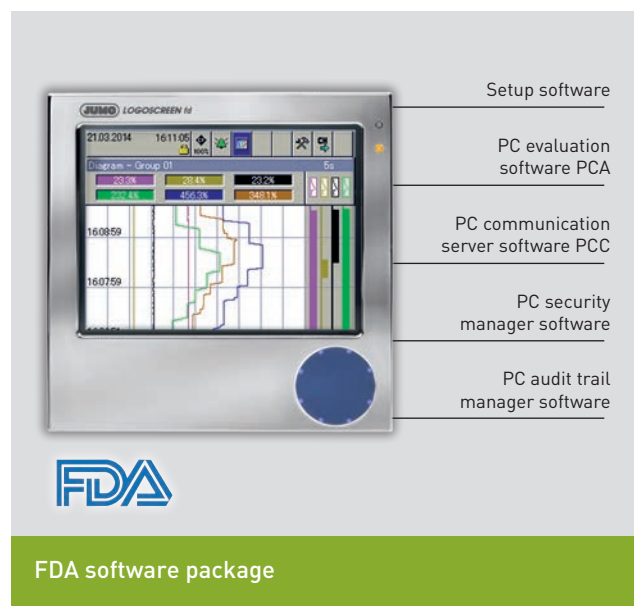
Features (Figure 2/3):

- Simple and fast application creation
- Extensive library with predefined graphical elements
- Device control via group picture
- Extensive documentation function with continuous and batch-related evaluation
- Search function for date/time, plant, and freely defined batch criteria
- Automatic printout and data export

FDA-compliant data recording



Data recording during sterilization



FDA software package

In the pharmaceutical and food industry product manufacture is subject to a protocoling obligation. In the past, people used paper-based recorders for recording process data. To protect the consumer, the parameter values recorded on paper were archived for decades to ensure complete proof of the production and traceability in the event of deviations. The introduction of paperless process recording technology has led to a shift from paper-based to paperless recorders. For the proper and clearly traceable recording of electronic process data, USA's Food & Drug Administration (FDA) passed Title 21 CFR Part 11 (Code of Federal Regulations) in 1997. This law defines the require-

ments for Electronic Records and Electronic Signatures, i.e. the paperless protocoling of production processes, as well as electronic signatures that correspond to a handwritten signature. The observation of the requirements of Title 21 CFR Part 11 meanwhile forms the foundation for the global acceptance of products from the pharmaceutical and food industry. With its new paperless recorder LOGOSCREEN fd and the associated PC software components setup, PC evaluation software (PCA), PC communication server software (PCC), security manager software and audit trail manager software, and its functional features, JUMO fulfills the FDA requirements of Title 21 CFR Part 11 in terms of Electronic Records and Electronic Signatures.



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