

SCREEN RECORDER KD7 TYPE



MAIN FEATURES:

- LCD TFT 5,7" colour screen, 320 × 240 pixels, with touch screen,
- recording and data archiving on CompactFlash card with capacity up to 4 GB,
- IP65 protection class on the front panel,
- 3, 6 or 12 galvanically isolated analog measuring channels,
- 24 measuring channels for data transmitted through communication interfaces,
- 16 or 32 alarms and 8 or 16 digital inputs,
- 4 or 8 analog outputs,
- visualization of measurements in digital form, charts, bargraphs, analog indicators,
- RS-232, RS-485 serial interfaces and USB 1.1 Device,
- ETHERNET communication, WWW server,
- intuitive servicing based on the graphical MS Windows® interface,
- 32-bit processor with ARM® core, MS Windows® CE operating system.

APPLICATION

The KD7 screen recorder is applied as a data acquisition station in measuring and control systems. It finds application to measure, visualise and supervise technical process parameters in various industrial branches, e.g. in pharmacy, food, chemical and papermaking industries.

It can be also used as an autonomous measuring and recording device.

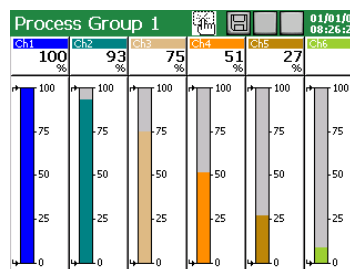
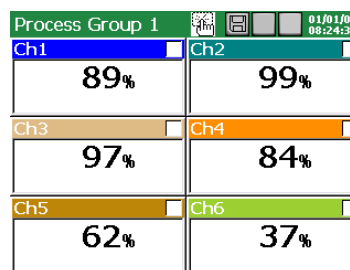
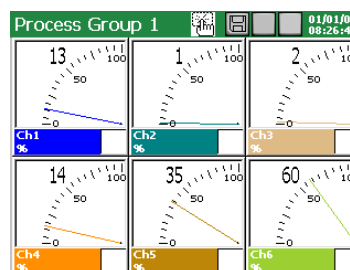
OPERATIONAL FUNCTION

- measuring inputs for the direct connection of thermocouples, voltage d.c., current d.c. and resistance,
- programmable current, voltage and resistance inputs,
- 6 MB internal memory with data support,
- exchangeable external memory up to 4 GB,
- access to recorded data via an internet browser,
- mathematical functions,
- counters and totalizers,
- visualization and archiving of 4 groups with 6 channels in each group (from 32 accessible channels), for which inputs are:
 - 1...12 analog measuring inputs,
 - 1...24 interface measuring inputs,
 - 1...16 mathematical functions
 - 1...16 binary inputs,
 - 1...32 logic channel totalizers,
 - 1...32 logic channel alarms,
 - 1...32 logic channel minimum, maximum, average,
- various language versions (English, French, Polish, Italian, Russian, French...),
- digital signature for archive data,
- „Just in place” help,
- programmable events.

DATA EXPOSURE

The KD7 recorder enables the visualization of recorded data in following shapes:

- linear and bargraphs,
- digital and analog indicators,
- each channel has the possibility to assign settings as: colour, name, range and presentation view.



DATA ARCHIVING

A CompactFlash card and the internal memory are destined for data archiving in the KD7 recorder. Depending on user's needs, the recorder is delivered with a memory card size up to 4 GB.

SAFETY OF STORED DATA - ACCESS CHECK

The individual login and password for each user, configurable access right to recorder resources, are only several of numerous solutions applied in the KD7 recorder in order to ensure the recorder work safety in the network.

PC SOFTWARE

KD7 SETUP, KD7 ARCHIVING, KD7 CONNECT and KD7 CHECK programs are destined for KD7 recorder servicing.

The **KD7 Connect** program is destined for the communication between the PC computer and the KD7 recorder by means of the USB interface. It enables the acquisition of archived data from the recorder, writing and erasing data on the CF card.

The **KD7 Setup** program enables to prepare a configuration file in the PC computer for the KD7 recorder. After copying the configuration on the CF memory card, it can be used for reprogramming of settings in the given KD7 recorder.

The **KD7 Archive** program is destined for visualization. The KD7 Archive program is destined for visualization, verification of the digital signature and export to the CSV format, data stored in binary format with digital signature obtained from the recorder.

The **KD7 Check** program is destined for the verification of file correctness with measuring data saved in the CSV with digital signature format.

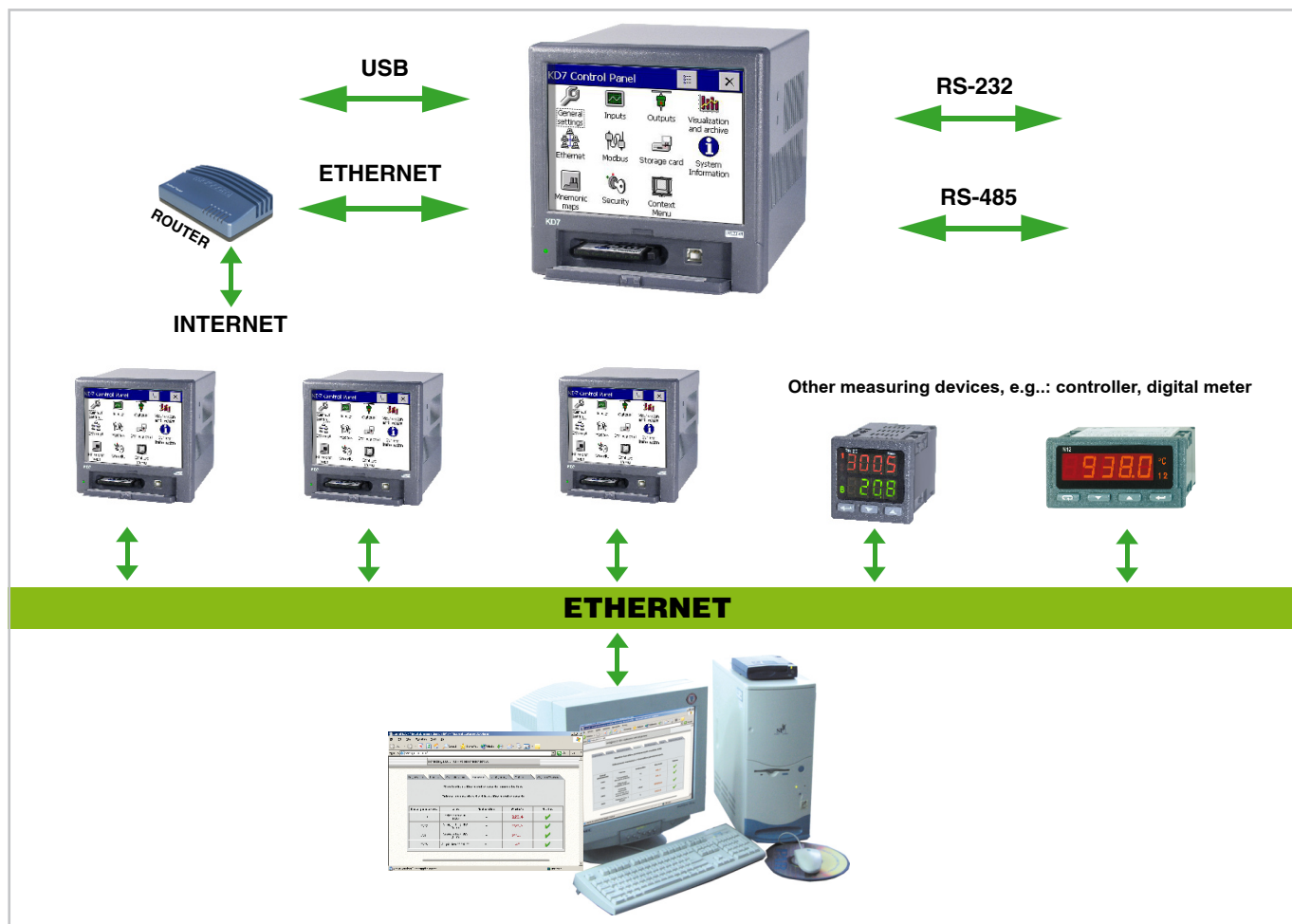
RECORDER WORKING IN THE NETWORK

Depending on needs, the user has the choice of following communication interfaces:

- RS-232
- RS-485 MODBUS Master and Slave
- ETHERNET 10 Base-T
- USB 1.1 Device

Recorder has a built-in HTTP server (WWW server).

A current state of a recorder may be observed from the web page archive data may be collected.



TECHNICAL DATA

Pogammable measuring inputs:

- number of measuring channel 3, 6 or 12
- input resistance > 10 MΩ
- max. sampling rate 350 ms (for 1 measuring place)
- measurement accuracy acc. to the table 1
- additional measuring error with the automatic compensation of reference cold junctions ≤ 1°C
- isolation between measuring places 100 V d.c.
- isolation measuring place-housing 500 V d.c.

Measuring ranges (universal measuring inputs) Table 1

Input signal	Signal in the menu	Measuring range/ Measuring accuracy (%)		Minimal sub-range/ Measuring accuracy (%)	
		Measuring range	Measuring accuracy (%)	Minimal sub-range	Measuring accuracy (%)
Voltage	mV	0... ± 9999 mV	0.15	5 mV	0.25
Current	mA	0... ± 20 mA	0.15	1 mA	0.25
Thermocouple (TC):					
J (Fe - CuNi)	TC J	-200...1200°C (-328...2192°F)	0.1	100°C (212°F)	1
K (NiCr - NiAl)	TC K	-200...1370 °C (-328...2498°F)	0.1	130°C (266°F)	0.7
N (NiCrSi - Ni Si)	TC N	-200...1300°C (-328...2372°F)	0.1	200°C (392°F)	0.5
E (NiCr - CuNi)	TC E	-200...1000°C (-328...1832°F)	0.1	100°C (212°F)	1
R (PtRh13 - Pt)	TC R	0...1760°C (32...3200°F)	0.2	540°C (1004°F)	0.3
S (PtRh10 - Pt)	TC S	0...1760°C (32...3200°F)	0.2	570°C (1058°F)	0.3
T (Cu - CuNi)	TC T	-200...400°C (-328...752°F)	0.1	110°C (230°F)	0.9
B (PtRh30 - PtRh6)	TC B	400...1820°C (752...3308°F)	0.2	1000°C (1832°F)	0.2
Resist. thermometer (RTD)					
Pt100	Pt100	-200...850°C (-328...1562°F)	0.15	50°C (122°F)	0.25
Pt500	Pt500	-200...850°C (-328...1562°F)	0.3		0.5
Pt1000	Pt1000	-200...850°C (-328...1562°F)	0.3		0.5
Ni100	Ni100	-60...180°C (-76...356°F)	0.15		0.25
Cu100	Cu100	-50...180°C (-58...356°F)	0.15		0.25
Pt100, Cu100 RTD acc. to GOST 6651-78 and GOST 6651-94 standards					
Potentiometric transmitter	Pot. Trans.	50...2000 Ω	0.15	100 Ω	0.25
Resistance transmitter	Res. Trans.	0...2000 Ω	0.15	100 Ω	0.25

Characteristic of thermocouples acc. to EN 605084-1
Characteristic of resistance thermometers acc. to IEC 755+A1+A2

Standard measuring inputs (version acc. to the ordering code)

- number of measuring channels 6 (or 12)
- measuring ranges:
 - voltage measurement 0...10 V input resistance > 1MΩ
 - current measurement 0...20 mA/4...20 mA input resistance < 10 Ω

- isolation between measuring channels 500 V d.c.
- isolation between measuring channels and the housing 500 V d.c.
- measurement accuracy 0,25% of the measuring range
- measurement time of each input minimum 100 ms

Admissible overload in the measuring system

acc. to EN 60051-8

Logic inputs

- control signal 8 (or 16), with a common mass 0/5... 24 V d.c.
- switching frequency up to 50 Hz (depending on equipment configuration)
- isolation to the housing 500 V d.c.

Analog outputs:

Current:

- output signal 4 (or 8) galvanically isolated 0...5 mA, 0...20 mA or 4...20 mA
- additional error 0.2%
- load resistance < 500 Ω
- isolation to the housing 500 V d.c.

Voltage:

- output signal 4 (or 8) galvanically isolated 0...5 V, 1...5 V load resistance ≥ 250 Ω or 0...10 V, load resistance ≥ 500 Ω
- additional error 0.2%
- isolation to the housing 500 V d.c.

Alarms:

- Electromagnetic relays: 8 (or 16), programmable
- load capacity for resistance load ≤ 250 V a.c./1 A ≤ 30 V d.c./1 A

OptoMOS relays:

- load capacity for resistance load 8 (or 16), programmable ≤ 85 V d.c., 100 mA ≤ 60 V a.c., 70 mA 300 mA/10 ms ca 8 Ω
- protection against a too excessive current SMD type F 125 V/125 mA (SIBA) or BSMD-S0.125 A (TME) For the current accretion rate: ≤ 5 A/s - from the 0 mA value ≤ 1.5 A - from the 100 mA value
- protection against an excessive voltage when switching an inductive load external system (varistor, transistor, triac)

Interfaces:

- RS-232 transmission protocol: Modbus Slave baud rate: 300... 256000 bit/s transmission mode: ASCII/RTU D-Sub 9 connector (female)
- RS-485 (Modbus Master) and RS-485 (Modbus Slave) baud rate: 300... 256000 bit/s transmission mode: ASCII/RTU złącze D-Sub 9
- Ethernet 10 Base-T, Socket RJ45, Server WWW
- USB V.1.1 Device, Socket USB-B

Supplying outputs for external object device supply

2 × 24 V d.c./30 mA

General recorder parameters:

- frontal face dimensions 144 × 144 mm
- length behind the panel 155 mm
- colour graphical screen LCD 5,7" of TFT type, 320 × 240 pixels, with a touch screen
- external data carrier CompactFlash up to 4 GB
- internal RAM memory (buffer) 6 MB
- built-in operators and functions arithmetical, logic, integral
- working temperature 0...23...50°C
- related air humidity < 75% without condensation
- supply voltage 90...230...253 V a.c. or 18...24...30 V d.c.
- power consumption (max.) < 30 VA
- protection of the power pack supply Fuse RFS 1.6 A 250 V (for an a.c. supply)

Housing protection class:

- from frontal side IP 65 acc. EN 60529
- from terminal side IP 00 acc. EN 60529

Operational safety:

- installation category II acc. EN 61010-1
- pollution level 2

Electromagnetic compatibility:

- noise emissions acc. EN 61000-6-4
- noise immunity acc. EN 61000-6-2

Weight < 2 kg

ORDER CODES

KD7 SCREEN RECORDER	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Measuring inputs (slot 1)														
without measuring inputs	0													
6 programmable measuring inputs	1													
6 standard measuring inputs: 0...10 V	2													
6 standard measuring inputs: 0...20 mA	3													
6 standard measuring inputs: 4...20 mA	4													
6 standard measuring inputs: 3 × 0...10 V + 3 × 0...20 mA	5													
6 standard measuring inputs: 3 × 0...10 V + 3 × 4...20 mA	6													
3 programmable measuring inputs	7													
Measuring inputs (slot 2)														
without measuring inputs	0													
6 programmable measuring inputs	1													
6 standard measuring inputs ¹⁾	2...6													
3 programmable measuring inputs	7													
Interface measuring input:														
with RS-485 (1) interface measuring input	1													
Digital signals/analog outputs (slot 3):														
without digital signals and analog outputs	0													
8 alarms (NO relays) + 8 alarms (OptoMos)	1													
8 alarms (NC relays) + 8 alarms (OptoMos)	2													
8 digital inputs + 4 analog outputs: 0...5 mA	3													
8 digital inputs + 4 analog outputs: 0...20 mA	4													
8 digital inputs + 4 analog outputs: 4...20 mA	5													
8 digital inputs + 4 analog outputs: 0...5 V	6													
8 digital inputs + 4 analog outputs: 0...10 V	7													
Digital signals/analog outputs (slot 4):														
without digital signals and analog outputs	0													
8 alarms (NO relays)+ 8 alarms (OptoMos)	1													
8 alarms (NC relays)+ 8 alarms (OptoMos)	2													
8 digital inputs + 4 analog outputs ²⁾	3...7													
Interfaces:														
USB	1													
USB + Ethernet + RS-485 (2)	2													
USB + Ethernet + RS-232	3													
Memory for measuring data:														
with a 512 MB CF card ³⁾	1													
as per order ⁴⁾	2													
Supply:														
90...253 V a.c.	1													
18...30 V d.c.	2													
Recorder firmware:														
without mathematical functions ⁵⁾	0													
with mathematical functions	1													
Softwares servicing the recorder from PC:														
KD7 Connect, KD7 Check	1													
KD7 Connect, KD7 Setup, KD7 Check, KD7 Archiv	2													
Acceptance tests:														
without an extra quality inspection certificate	8													
with an extra quality inspection certificate	7													
according to user's agreements	X													

¹⁾ Write the range code from the item 2...6 as above: (Slot1)
²⁾ Write the range code from the item 3...7 as above: (Slot3)
³⁾ CF card with the lowest capacity from accessible currently on the market
⁴⁾ After agreeing with the manufacturer (it is recommended to use 4 GB CompactFlash card from SanDisk® company)
⁵⁾ A key for the activation of mathematical functions can be ordered separately