

# KD7 SCREEN RECORDER

## FEATURES:

- MOD BUS
- IP65
- RTC
- Password protection
- f(x)

## INPUTS:

- DC
- RS485 MASTER

## OUTPUTS:

- 0/4...20 mA
- 0...10 V
- RS 485
- RS 232
- USB

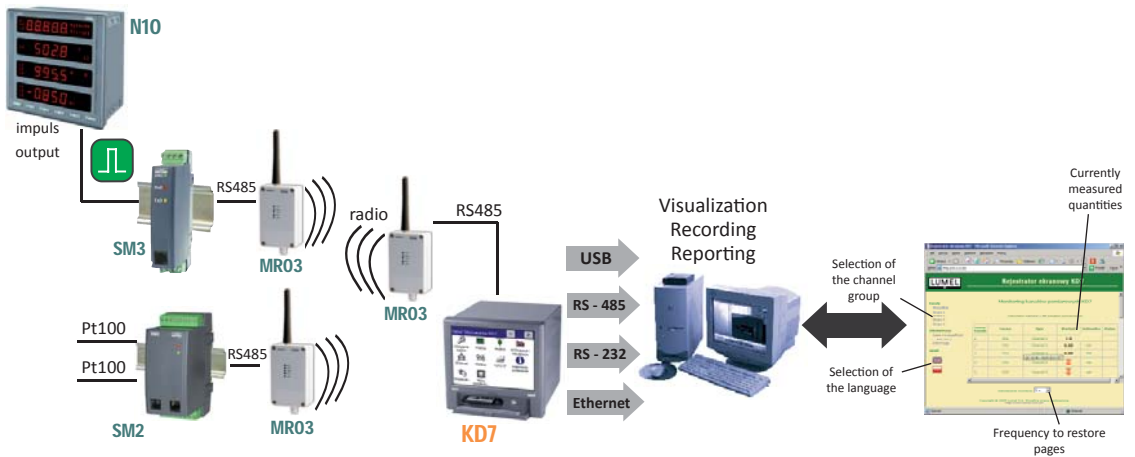
## GALVANIC ISOLATION:

- Supply
- Digital interface



- Intuitive servicing - LCD TFT 5.7" screen, with touch panel.
- Data archiving on CompactFlash card, capacity up to 4 GB.
- IP65 protection grade on the front panel.
- Up to 24 measuring channels.
- 12 analog inputs (programmable and standard).
- 6 or 32 alarms outputs.
- 8 or 16 digital inputs.
- 4 or 8 analog outputs.
- Visualization of measurements in digital form, analog indicators, diagrams, bargraphs.
- RS-232, RS-485 and USB serial interfaces.
- ETHERNET communication, WWW and FTP server, MODBUS SLAVE TCP/IP.
- MS Windows® CE operating system.
- PC softwares: KD7 SETUP, KD CHECK, KD CONNECT, KD ARCHIVE.
- Diversified user's access rights.
- Menu available in various language versions.

## EXAMPLE OF APPLICATION

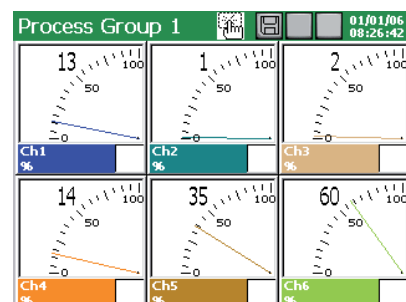
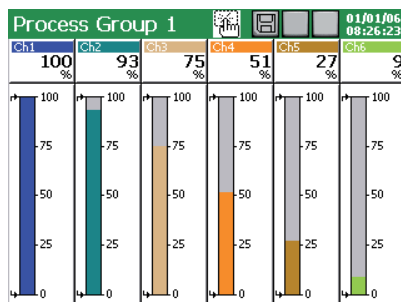
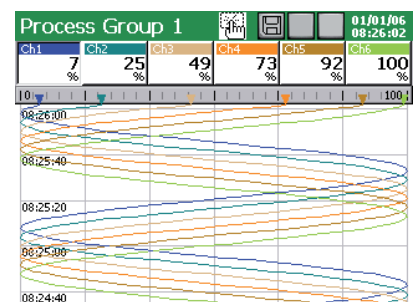
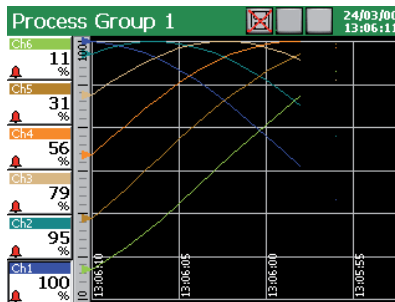


System of measurement, control and recording of temperature and energy with wireless communication.

## EXAMPLES OF MEASURING DATA PRESENTATION

### Various forms of data display:

- linear diagrams,
- digital indicators,
- analog views,
- bargraphs,
- tables and others. (manual and automatic switching between screens.)



INPUTS					
Input signal	Measuring range/ Accuracy class (%)		Minimal subrange/ Accuracy class (%)		
Voltage	0 .. ±9999 mV	0.15	5 mV	0.25	
Current	0 .. ±20 mA	0.15	1 mA		
Thermocouple (TC): J (Fe-CuNi)	-200 .. 1200°C	0.1	100°C	1	
K (NiCr-NiAl)	-200 .. 1370°C		130°C	0.7	
N (NiCrSi-NiSi)	-200...1300°C		200°C	0.5	
E (NiCr-CuNi)	-200...1000°C		100°C	1	
R (PtRh13-Pt)	0 .. 1760°C	0.2	540°C	0.3	
S (PtRh10-Pt)	0 .. 1760°C		570°C	0.3	
T (Cu-CuNi)	-200 .. 400°C	0.1	110°C	0.9	
B (PtRh30-PtRh6)	400 .. 1820°C	0.2	1000°C	0.2	
L (GOST)	-200 .. 800°C	0.1	90°C	0.2	
K (GOST)	-200 .. 1370°C		130°C	0.7	
Resistance transmitter (RTD): Pt 100	-200 .. 850°C	0.15	50°C	0.25	
Pt 500		0.3		0.5	
Pt 1000		0.3			
Ni 100	-60 .. 180°C	0.15			0.25
Cu 100	-50 .. 180°C				
GR.21 (GOST'78) (GOST'94)	-260 .. 1100°C				
50P (GOST'78) (GOST'94)					
100P (GOST'78)					
100P (GOST'94)					
50M (GOST'78) (GOST'94)	-200 .. 200°C				
100M (GOST'78) (GOST'94)					
Potentiometric transmitter	50 .. 2000 Ω		100 Ω		
Resistance transmitter	0 .. 2000 Ω		100 Ω		
Logic input	control signal 0/5 .. 24 V d.c.		switching frequency up to 50 Hz		

OUTPUTS	
Output type	Properties
Analog	- current: 0 .. 5 mA, 0 .. 20 mA lub 4 .. 20 mA, load resistance < 500 Ω - voltage: 0 .. 5 V, 1 .. 5 V, 0 .. 10 V
Relay	- electromagnetic relays: ≤ 250 V a.c./1 A or ≤ 30 V d.c./1 A - OptoMOS relays: ≤ 85 V d.c., 100 mA or ≤ 60 V a.c., 70 mA
Output to supply object transducers	- 2 outputs 24 V d.c./ 30 mA

DIGITAL INTERFACE	
Interface type	Properties
RS-485	2 interfaces: MODBUS Slave and Master, baud rate 0.3 .. 256 kbit/s, transmission mode ASCII/ RTU
RS-232	interface: MODBUS Slave, baud rate 0.3 .. 256 kbit/s, transmission mode ASCII/ RTU
USB	Device V.1.1, socket USB-B
ETHERNET	10 Base-T, socket RJ45, MODBUS Slave TCP/IP, FTP and WWW server

EXTERNAL FEATURES		
Supply voltage	90 .. 230 .. 253 V	input power ≤ 30 VA
Temperature	operating: 0 .. 23 .. 55°C	storage: -20 .. 60°C
Humidity	< 70%	condensation inadmissible

RATED OPERATING CONDITIONS		
Display field	LCD 5.7" TFT type	320 x 240 pixels, with touch screen
Overall dimensions	144 x 144 mm	panel cut-out dimensions: 138+1 x 138+1 mm
Weight	< 2 kg	
Protection grade	from frontal side: IP65	from terminal side: IP20

SAFETY AND COMPATIBILITY REQUIREMENTS		
Electromagnetic compatibility	noise emissions	acc. to EN 61000-6-4
	noise immunity	acc. to EN 61000-6-2
Isolation between circuits	500 V d.c.	acc. to EN 61010-1
Isolation between supply and measuring system	2 kV	
Pollution level	2	
Installation category	II	
Maximal operating voltage in relation to earth	for the measuring system, relays and supply: 500 V	acc. to EN 61010-1
Altitude above sea level	< 2000 m	

SOFTWARES ASSISTING THE KD7 RECORDER WORK:

**KD ARCHIVE**  
Software destined to review and analyse archive data from the recorder on a PC computer, stored in a binary format with digital signature.

**KD7 SETUP**  
Software destined to configure recorder settings by means of a PC computer.

# KD7 SCREEN RECORDER

## EXEMPLARY FUNCTIONS OF KD8 ASSISTING SOFTWARES

SOFTWARES ASSISTING THE KD7 RECORDER WORK:

### KD CONNECT

Software destined for the communication between the recorder and the PC computer through the USB interface in order to download archive data and record/erase on the CF card.

### KD CHECK

Software destined to verify the digital signature in archive data stored in text format.

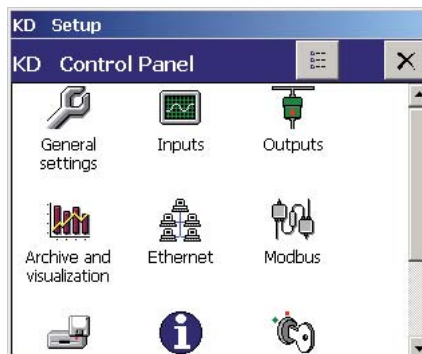
Recorder information:  
Copyright (c) 2007-2008 by LZAE Lumel S.A.  
Screen Recorder KD8  
System version: 0.5.0.3 (13/05/2008, 12:00)  
Hardware version: 00.00.00.00.00.00.00  
Image HW ver.: 10.00.00.00.00.00.00  
Bootloader version: 0.1.0.0

File name	Date	Size
20060519 123250 0 G1 - Process Group 1.csv	20/05/08 (13:16:50)	3176
20060519 123250 0 G2 - Process Group 2.csv	20/05/08 (13:17:00)	2504
20060519 123250 0 - AuditLog.csv	25/05/08 (13:25:04)	16
Configuration_20060519_123250.kd8	25/05/08 (10:37:20)	1408
20060525 094720 0 G1 - Process Group 1.csv	25/05/08 (09:24:38)	638
20060525 094720 0 G2 - Process Group 2.csv	25/05/08 (09:24:38)	496
20060525 102500 0 G1 - Process Group 1.csv	25/05/08 (09:25:42)	398
20060525 102440 0 G1 - Process Group 1 - AlarmLog.csv	25/05/08 (09:25:42)	1548
20060525 102500 0 G2 - Process Group 2.csv	25/05/08 (09:25:42)	316
20060525 112600 0 G1 - Process Group 1.csv	25/05/08 (09:42:36)	118

Downloading and erasing of archive data by means of the PC computer - KD CONNECT.



Review of archive data through the PC computer - KD ARCHIVE.



KD7 configuration through the PC computer -KD SETUP.

Checking result:  
incorrect file verification



Verification of the digital signature of text data - KD CHECK.

## ORDERING

Screen Recorder KD7 -	X	X	X	X	X	X	X	X	X	X	X
<b>Measuring inputs (Slot 1):</b>											
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 x 0..10 V + 3 x 0..20 mA	5										
6 standard measuring inputs:											
3 x 0..10 V + 3 x 4..20 mA	6										
3 programmable measuring inputs	7										
<b>Measuring inputs (Slot 2):</b>											
without measuring inputs	0										
6 standard programmable measuring inputs	1										
6 standard measuring inputs <sup>1)</sup>	2..6										
3 programmable measuring inputs	7										
<b>Interface measuring input:</b>											
with RS-485 interface measuring input	1										
<b>Digital signals/analog outputs (Slot 3):</b>											
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										
<b>Digital signals/analog outputs (Slot 4):</b>											
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 <sup>2)</sup>	3..7										
<b>Interfaces:</b>											
USB	1										
USB + Ethernet + RS-485 (2)	2										
USB + Ethernet + RS-232	3										
<b>Memory for measuring data:</b>											
with a 4 GB CF card <sup>3)</sup>	1										
as per order <sup>4)</sup>	X										
<b>Supply:</b>											
90..253 V a.c.	1										
<b>Recorder firmware:</b>											
without mathematical functions <sup>5)</sup>	0										
with mathematical functions	1										
<b>Softwares servicing the recorder from PC:</b>											
KD Connect, KD Check	1										
KD Connect, KD Check, KD Archive, KD7 Setup	2										
<b>Acceptance tests:</b>											
without extra quality inspection requirements	8										
with an extra quality inspection certificate	7										
according to customer's request <sup>6)</sup>	X										

<sup>1)</sup> write the range code from the item 2...6 as above: (Slot 1)

<sup>2)</sup> write the range code from the item 3...7 as above: (Slot 3)

<sup>3)</sup> CF card with the lowest capacity from currently accessible cards on the market

<sup>4)</sup> after agreeing with the manufacturer (it is recommended to use a 4 GB CompactFlash card from ScanDisk company)

<sup>5)</sup> a key for the activation of mathematical functions can be ordered separately

<sup>6)</sup> after agreeing with the manufacturer

### Example of order:

the code **KD7-1-1-1-0- 0-1-6-1-1-1-8** means: KD7 recorder, (Slot 1) with 6 programmable measuring inputs, (Slot 2) with 6 programmable measuring inputs, with RS-485 interface measuring input, (Slot 3) without digital and analog outputs, (Slot 4) without digital signals and analog outputs, with USB interface, with a 4 GB CF memory card, supply: 90 .. 253 V a.c., with mathematical functions, with KD Connect and KD Check softwares, without extra quality inspection requirements.

### SEE ALSO:



Temperature sensors.



Programmable transducer of temperature and humidity - P18.



Controllers.



For more information about LUMEL's products please visit our website: [www.lumel.com.pl](http://www.lumel.com.pl)