

KR2000/3000 SERIES GRAPHIC RECORDER

with measured
data protection



KR2000/3000 series are paperless recorders that prevent falsification of data to meet the requirements of FDA 21CFR Part11 for medicinal chemical manufacturing. Employs high visibility display and high operating function. Also it realize data recording and management by easy operation.

*FDA 21CFR Part 11: The U.S. Food and Drug Administration rule on electronic records and electronic signatures. It is a requirement when replacing the paper-based records to electronic media and enacted in 1997.



KR2000
144 x 144 mm Size
5.6" TFT color LCD Display



KR3000
288 x 288 mm Size
12.1" TFT color LCD Display

FEATURES

- Easy operation
- Touch screen (KR3000)
- High speed sampling 100ms

- Export data to USB flash drive
- LAN network capability
- Various functions such as calculation

MODELS

● KR2000

KR2P □ □ M □ □

Measuring points/sampling rate*

- 60 : 6 points/100ms
- 20 : 12 points/100ms
- 61 : 6 points/1s
- 21 : 12 points/1s

Communications interface (option)

- N : None
- R : High-order (RS232C/RS485)
- Q : High-order (RS232C/RS485)
+ Low-order (RS485)

Digital input/ alarm output (option)

- 0 : None
- 1 : Mechanical relay output - 12 points
(a contact)
- 2 : Mechanical relay output - 6 points
(c contact)
- 7 : Digital input - 8 points
+ MOS relay output 8 points

Carrying handle & feet (option)

- A : None
- T : With carrying handle & feet

* 1 to 4 channels input (4 points) when setting faster than 500ms sampling rate with model of 1sec sampling rate.

● KR3000

KR3P □ □ - □ □

Measuring points/sampling rate*

- 20: 12 points/100ms
- 40: 24 points/100ms
- 60: 36 points/100ms
- 80: 48 points/100ms
- 21: 12 points/1s
- 41: 24 points/1s
- 61: 36 points/1s
- 81: 48 points/1s

Communications interface (option)

- N : None
- R : High-order (RS232C)
- S : High-order (RS422A/RS485)

Digital input/ alarm output (option)

- 0: None
- 1: Alarm output 12 points (a contact)
- 2: Alarm output 6 points (c contact)
- 3: Alarm output 24 points (a contact)
- 4: Alarm output 12 points (c contact)
- 5: Alarm output 12 points (a contact)
+ 6 points (c contact)
- A: Digital input 8 points
- B: Digital input 8 points
+ alarm output 12 points (a contact)
- C: Digital input 8 points
+ alarm output 6 points (c contact)
- D: Digital input 8 points
+ alarm output 24 points (a contact)
- E: Digital input 8 points
+ alarm output 12 points (c contact)
- F: Digital input 8 points
+ alarm output 12 points (a contact)
+ alarm output 6 points (c contact)

Carrying handle & feet (option)

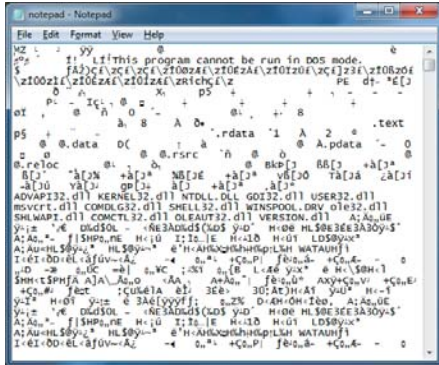
- A : None
- T : With carrying handle & feet

PREVENTING FALSIFICATION OF DATA

Store the file in binary format and restrain falsification. Only able to opened by ZAILA-P exclusive application software and display a message if falsified.

Binary file example

* Example when opened by word pad. Unable to check the contents.



Automatically record the login record, change Display audit operation. setting and other various operation record. Display audit trail by recorder itself. Audit trail can be also referred by ZAILA-P exclusive application software.

Audit trail screen

Operation	Date and time	Content	Name
	02/05/2011 10:17:59	Login	Administrator
	02/05/2011 10:17:48	Logout	userful name
	02/05/2011 10:17:48	STOP	userful name
	02/05/2011 10:17:43	START	userful name
	02/05/2011 10:17:32	Login	userful name
	02/05/2011 10:17:30	Password setting	userful name
	02/05/2011 10:16:58	Logout	Administrator
	02/05/2011 10:16:28	STOP	Administrator
	02/05/2011 10:16:22	Set [System]	Administrator
	02/05/2011 10:15:49	Snap shot	Administrator
	02/05/2011 10:14:40	Snap shot	Administrator
	02/05/2011 10:09:58	Snap shot	Administrator
	02/05/2011 10:03:20	START	Administrator
	02/05/2011 10:03:12	Maker setting	Administrator
	02/05/2011 10:02:38	STOP	Administrator
	02/05/2011 10:02:31	Maker setting	Administrator

Electronic signature

Replay and confirm the record file by recorder and able to electronic signature to that file. Confirm the signature information by file information of recorder or ZAILA-P exclusive application software.

File information display

Operation	Recorded data	Start date and time	End date and time	Data count	Copy
		02/05/2011 10:58:19	02/05/2011 10:58:26	8	

File information	Value
Start date and time	02/05/2011 10:58:19
End date and time	02/05/2011 10:58:26
Interval	1 sec.
Data count	8
Instrument name	
Serial number	
Software version	110325
Setting file	20110502101622.kps
Sign1	
Sign2	

LOGIN FUNCTION

Register up to 5 administrators and 100 general users and only registered users can access. Set 10 kinds of access authority and signature level to general users. ID, Full name, authority, password is settable per each user.

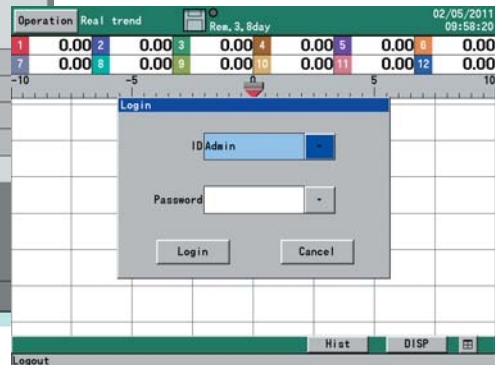
Login user registration

ID	Full name	Authority	Password
1 USER1	userful name	1	Clear
2 QUEST1	questfull name	2	Clear
3		1	Clear
4		1	Clear
5		1	Clear
6		1	Clear
7		1	Clear
8		1	Clear
9		1	Clear
10		1	Clear
11		1	Clear
12		1	Clear

Authority & signature level

Authority	Signature level
Authority 1	Authority name Atrn1
Authority 2	Authority name Atrn2
Authority 3	Authority name Atrn3
Authority 4	Authority name Atrn4
Authority 5	Authority name Atrn5
Authority 6	Authority name Atrn6
Authority 7	Authority name Atrn7
Authority 8	Authority name Atrn8
Authority 9	Authority name Atrn9
Authority 10	Authority name Atrn10

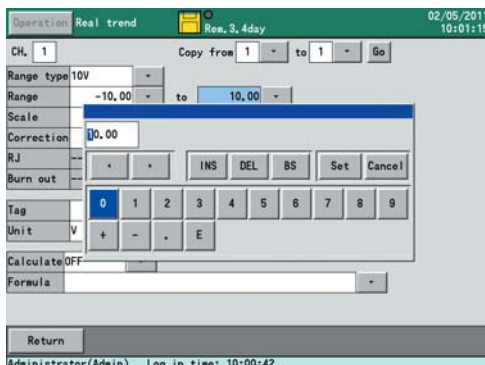
Login screen



Smooth Operation by touch screen! KR3000 SERIES

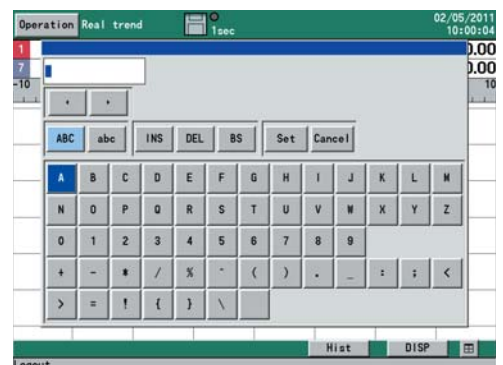
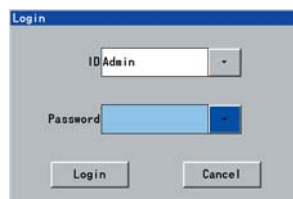
Input / Computation setting

Easy setting and display



Login operation

Easy-to-input the letter and value by touching.



Data replay, CSV conversion

ZAILA-P Exclusive application software (standard attached)

By using exclusive application software, each file can data replay, confirm audit trail, signature, print, convert to PDF and convert to CSV file.

Each file recorded in KR2000 & KR 3000 can be taken out by USB flash drive or forwarding to network server.

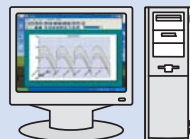
KR3000



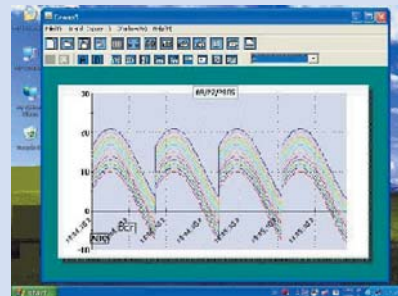
KR2000



USB flash drive



ZAILA-P



INPUT SPECIFICATIONS

Measuring points: KR2000 --- 6 points, 12 points
 KR3000 --- 12 points, 24 points, 36 points, 48 points
 Input types: Universal (refer to the table of measuring range)
 Accuracy ratings: 0.1% digit (exceptions) * Measurement range conversion accuracy
 Reference junction compensation accuracy:
 K, E, J, T, N, Platinel II --- 0.5 or less
 Sampling rate: 100ms --- Approximately 100ms for all points
 1 ms --- Approximately 300ms for all points*
 Burnout: Disconnection of input signal is detected on thermocouple and resistance input.

* When sampling rate is set below 0.5s at KR2P61/ KR2P21, then input will automatically becomes 4 points and sampling rate will be 100ms.

RECORDING SPECIFICATIONS

Internal memory: 512MB
 Exterior memory: Store the data file to USB flash drive
 Recording cycle: 100, 200, 500ms, 1, 2, 3, 5, 10, 15, 20, 30s
 1, 2, 3, 5, 10, 15, 20, 30, 60min
 Logging data: Measured data --- Time of day, month and year of recording start, tag, measured data, alarm status/types, maker text, etc
 Setting parameter --- All setting parameter
 Computation result data
 Store types: Binary type
 Storing methods: Manual start / stop
 Schedule (designation for time of day and date)
 Trigger signal (alarm event, digital input)
 Data logging of before and after trigger points

* Pre-trigger is selectable
 Measuring numbers of pre-trigger --- Max 950 data

COMPUTATION SPECIFICATIONS

Computation points:
 KR2000 --- Maximum 44 points
 KR3000 --- Maximum 128 points
 Computation types:
 Arithmetic operation, comparison operations, logical operations, integration operations, channel data operations, dew point, relative humidity, wind direction, 16 direction display, increment per time, remaining amount of internal memory, abnormality judgment, user lockout judgment

DISPLAY SPECIFICATIONS

Display types: Measured data display
 (Trend screen, Data screen, Bar-graph screen)
 Historical trend display
 (Simultaneous display with Real-time trend is available)
 Information display
 (alarm display, marker list, file list, audit trail)
 Setting screen
 Display points: KR2000 --- Max 44 points
 KR3000 --- Max 56 points

*The LCD display may contain some pixels that always or never illuminate, and the brightness of some areas of the display may appear uneven. There are typical LCD performance characteristics and do not constitute malfunctions.

COMMUNICATION SPECIFICATIONS

Network

Communication type: Ethernet (10BASE-T/100BASE-TX)
 FTP client: Transfer a data file to a network server
 Sntp client: The time can be synchronized to the time of Sntp server
 E-Mail: E-Mail notification at specified time for alarm activation
 Report data at specified time is selectable from all registered data
 Notification address --- Maximum 8 contacts

ALARM SPECIFICATIONS

Setups: Up to 4 alarms can be programmed per channel
 Alarm types: Upper limit, lower limit, differential upper limit, differential lower limit (deadband is selectable), abnormal data
 Delay function: Setup range of alarm delay --- 0 to 3600 seconds
 Alarm settings: AND/OR selectable

GENERAL SPECIFICATIONS

Rated power voltage: 100 to 240V AC (universal power supply) 50/60Hz
 Maximum power consumption:
 KR2000 --- 50VA
 KR3000 --- 65VA
 Normal operating condition:
 Ambient temperature & humidity --- 0 to 50°C, 20 to 80%RH
 Power voltage --- 90 to 264V AC
 Power frequency --- 50/60Hz±2%
 Attitude --- left/right/forward tilting 0°C, backward tilting 0 to 20%
 Weight: KR2000 --- About 2.2kg (max)
 KR3000 --- About 7.2kg (max)
 Mounting: Panel mounting

STANDARDS

Protection: KR2000 --- IEC529 IP65 compliance (front part)
 KR3000 --- IEC529 IP54 compliance (front part)
 CE: KR2000 (approved)
 KR3000 (approved)
 EMC directive --- EN61326-1 Class A
 EN61000-3-2
 EN61000-3-3
 Low voltage directive --- EN61010-1
 Over voltage (installation) category II, pollution level II, measuring category II
 *The indication equivalent to 1mV may vary under the test environment by EMC directives.

OPTION SPECIFICATIONS

Please see standard version's PS sheets.

* Other detail specifications are common to standard versions.

MEASURING RANGES

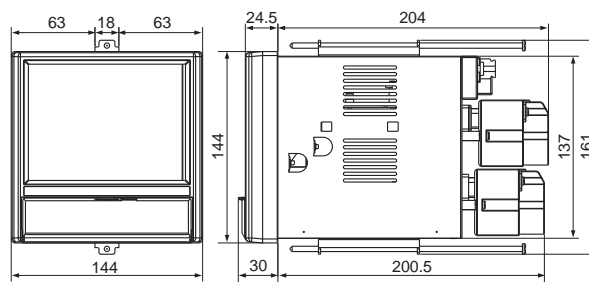
Input type	Measuring range	Accuracy ratings	
DC voltage	-13.80 to 13.80mV	0.1%1digit	
	-27.60 to 27.60mV		
	-69.00 to 69.00mV		
	-200.0 to 200.0mV		
	-500.0 to 500.0mV		
	-2.000 to 2.000V		
(with built-in voltage divider)	-5.000 to 5.000V		
	-10.00 to 10.00V		
	-20.00 to 20.00V		
	-50.00 to 50.00V		
T/C	K	-200.0 to 300.0°C -200.0 to 600.0°C -200 to 1370°C	0.1%1digit *0 to 400°C: 0.2%1digit
	E	-200.0 to 200.0°C -200.0 to 350.0°C -200 to 900°C	
	J	-200.0 to 250.0°C -200.0 to 500.0°C -200 to 1200°C	
	T	-200.0 to 250.0°C -200.0 to 400.0°C	
	R	0 to 1200°C 0 to 1760°C	0.1%1digit *0 to 400°C: 0.2%1digit
	S	0 to 1300°C 0 to 1760°C	
	B	0 to 1820°C	0.1%1digit *0 to 400°C:Out of accuracy ratings *400 to 800°C: 0.15%1digit
	N	-200.0 to 400.0°C -200.0 to 750.0°C -200 to 1300°C	0.15%1digit *-200 to 0°C: 0.3%1digit
	W-WRe26	0 to 2315°C	0.15%1digit *0 to 100°C: 4%1digit *100 to 400°C: 0.5%1digit
	WRe5-WRe26	0 to 2315°C	0.2%1digit
	PtRh40-PtRh20	0 to 1888°C	0.2%1digit *0 to 300°C: 1.5%1digit *300 to 800°C: 0.8%1digit
	NiMo-Ni	-50.0 to 290.0°C -50.0 to 600.0°C -50 to 1310°C	0.2%1digit
	CR-AuFe	0.0 to 280.0K	0.2%1digit *0 to 20K: 0.5%1digit *20 to 50K: 0.3%1digit
	Platinel2	0.0 to 350.0°C 0.0 to 650.0°C 0 to 1395°C	0.15%1digit
	U	-200.0 to 250.0°C -200.0 to 500.0°C -200.0 to 600.0°C	0.15%1digit *-200 to 0°C: 0.3%1digit
	L	-200.0 to 250.0°C -200.0 to 500.0°C -200 to 900°C	0.1%1digit *-200 to 0°C: 0.2%1digit
RTD	Pt100	-140.0 to 150.0°C -200.0 to 300.0°C -200.0 to 850.0°C	0.1%1digit *-140.0 to 150.0°C: 700 to 850°C: 0.15%1digit
	JPt100	-140.0 to 150.0°C -200.0 to 300.0°C -200.0 to 649.0°C	0.1%1digit *-140.0 to 150.0°C: 0.15%1digit
	Pt50	-200.0 to 649.0°C	0.1%1digit
	Pt-Co	4.0 to 374.0K	0.15%1digit *4 to 50K: 0.3%1digit

The accuracy ratings are converted into the measuring range under reference operating condition. Thermocouple input does not contain reference junction compensation accuracy.

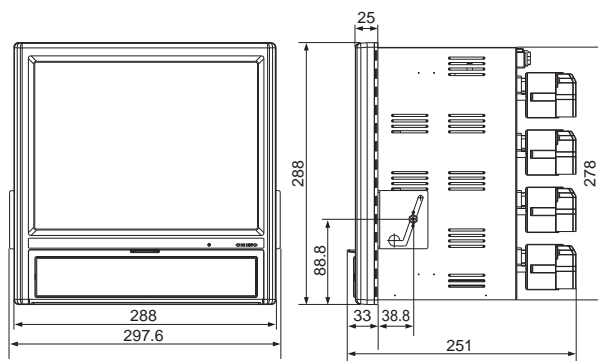
K,E,J,T,R,S,B,N : IEC584, JIS C1602-1995
W-WRe26, WRe5-WRe26, PtRh40-PtRh20, Platinel II, NiMo-Ni, Cr-AuFe : ASTM Vol14.03
U(Cu-CuNi), L(Fe-CuNi) : DIN43710

DIMENSIONS

●KR2000



●KR3000



Unit: mm

AVAILABLE OPTIONS

Name
Validation Document
Traceability Certificate
Installation Qualification (IQ) Certificate
Operational Qualification (OQ) Certificate

SOFTWARE (ZAILA-P) ENVIRONMENT

CPU	1GHz or faster
OS	Windows XP/Vista/7 *Internet Explorer 6.0 or later
Memory	256MB or more (512MB or more recommended)
Disk drive	CD-ROM drive: 1 drive or more Hard disk drive: Disk space of 1 drive or more for 100MB or more
Language	Japanese, English

Specifications subject to change without notice. Printed in Japan (I) 2017. 3

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