

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□□A

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

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

●KR3000

KR3P□□-□□A

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)

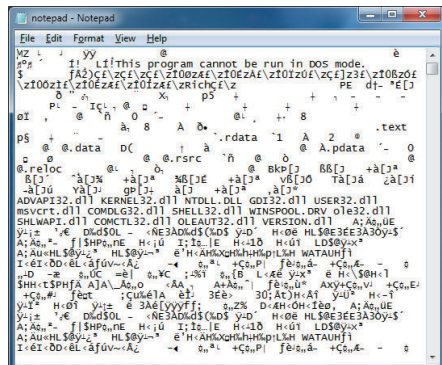
- 0: None
- 1: Alarm output 12 points (a contact)
- 2: Alarm output 6 points (c contact)
- 3: Alarm output 24 points (a contact)
- 4: Alarm output 12 points (c contact)
- 5: Alarm output 12 points (a contact)
+ 6 points (c contact)
- A: Digital input 8 points
- B: Digital input 8 points
+ alarm output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

PREVENTING FALSIFICATION OF DATA

Store the file in binary format.
Display a message if falsified.

Binary file example

* Example when opened by word pad.



AUDIT TRAIL

Electronic signature to electronic record file.
Display audit operation.

Audit trail screen

Operation	Audit	02/05/2011 10:19:07
Date and time	Content	Name
02/05/2011 10:17:59	Login	Administrator
02/05/2011 10:17:48	Logout	user1full name
02/05/2011 10:17:46	STOP	
02/05/2011 10:17:43	START	
02/05/2011 10:17:32	Login	
02/05/2011 10:17:30	Password setting	
02/05/2011 10:16:58	Logout	
02/05/2011 10:16:22	Set [System]	
02/05/2011 10:15:49	Snap shot	
02/05/2011 10:14:40	Snap shot	
02/05/2011 10:09:49	Snap shot	
02/05/2011 10:03:20	START	
02/05/2011 10:03:12	Maker setting	
02/05/2011 10:02:38	STOP	
02/05/2011 10:02:31	Maker setting	

File information display

Operation	Recorded data	Rem. 3, 6day	02/05/2011 10:59:03
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			
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.

Login user registration

ID	Full name	Authority	Password
1 USER1	user1full name	1	Clear
2 GUEST1	guest1full 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

Operation	Real trend	1sec	02/05/2011 10:15:47
Authority 1	Authority name	Atm1	
Alarm ACK	Delete file		
START/STOP	Copy file		
CLEAR MENU/HOME settings	FTP transfer		
DISP menu	Delete marker		
Set clock	Write marker		

Login screen

Operation	Real trend	Rem. 3, 6day	02/05/2011 09:58:20
1	0.00	2	0.00
3	0.00	4	0.00
5	0.00	6	0.00
7	0.00	8	0.00
9	0.00	10	0.00
11	0.00	12	0.00

Smooth Operation by touch screen!

KR3000 SERIES

Input / Computation setting

Easy setting and display

Operation	Real trend	Rem. 3, 4day	02/05/2011 10:01:15
CH. 1	Copy from 1	to 1	Go
Range type	10V		
Range	-10.00	to 10.00	
Scale	0.00		
Correction			
RJ			
Burn out			
Tag			
Unit	V		
Calculate OFF			
Formula			

Login operation

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

ID Admin	
Password	
Login	Cancel

Operation	Real trend	1sec	02/05/2011 10:00:04
1	0.00		
7	0.00		
10	0.00		

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.

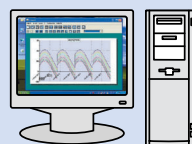
KR3000



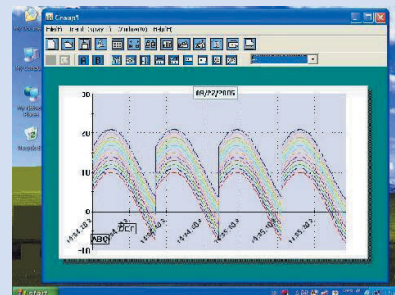
KR2000



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 2 --- 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 2, 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.

MEASURING RANGES

Input type		Measuring range		Accuracy ratings
DC voltage		-13.80 to 13.80mV -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		$\pm 0.1\% \pm 1$ digit
(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		$\pm 0.1\% \pm 1$ digit *200 to 0°C: $\pm 0.2\% \pm 1$ digit
	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		$\pm 0.1\% \pm 1$ digit *0 to 400°C: $\pm 0.2\% \pm 1$ digit
	S	0 to 1300°C 0 to 1760°C		
	B	0 to 1820°C		$\pm 0.1\% \pm 1$ digit *0 to 400°C: Out of accuracy ratings *400 to 800°C: 0.15% ± 1 digit
	N	-200.0 to 400.0°C -200.0 to 750.0°C -200 to 1300°C		$\pm 0.15\% \pm 1$ digit *200 to 0°C: $\pm 0.3\% \pm 1$ digit
	W-WRe26	0 to 2315°C		$\pm 0.15\% \pm 1$ digit *0 to 100°C: $\pm 4\% \pm 1$ digit *100 to 400°C: $\pm 0.5\% \pm 1$ digit
	WRe5-WRe26	0 to 2315°C		$\pm 0.2\% \pm 1$ digit
	PtRh40-PtRh20	0 to 1888°C		$\pm 0.2\% \pm 1$ digit *0 to 300°C: $\pm 1.5\% \pm 1$ digit *300 to 800°C: $\pm 0.8\% \pm 1$ digit
	NiMo-Ni	-50.0 to 290.0°C -50.0 to 600.0°C -50 to 1310°C		$\pm 0.2\% \pm 1$ digit
	CR-AuFe	0.0 to 280.0K		$\pm 0.2\% \pm 1$ digit *0 to 20K: $\pm 0.5\% \pm 1$ digit *20 to 50K: $\pm 0.3\% \pm 1$ digit
	Platinel II	0.0 to 350.0°C 0.0 to 650.0°C 0 to 1395°C		$\pm 0.15\% \pm 1$ digit
RTD	U	-200.0 to 250.0°C -200.0 to 500.0°C -200.0 to 600.0°C		$\pm 0.15\% \pm 1$ digit *200 to 0°C: $\pm 0.3\% \pm 1$ digit
	L	-200.0 to 250.0°C -200.0 to 500.0°C -200 to 900°C		$\pm 0.1\% \pm 1$ digit *200 to 0°C: $\pm 0.2\% \pm 1$ digit
	Pt100	-140.0 to 150.0°C -200.0 to 300.0°C -200.0 to 850.0°C		$\pm 0.1\% \pm 1$ digit *140.0 to 150.0°C 700 to 850°C: $\pm 0.15\% \pm 1$ digit
	JPt100	-140.0 to 150.0°C -200.0 to 300.0°C -200.0 to 649.0°C		$\pm 0.1\% \pm 1$ digit *140.0 to 150.0°C: $\pm 0.15\% \pm 1$ digit
	Pt50	-200.0 to 649.0°C		$\pm 0.1\% \pm 1$ digit
	Pt-Co	4.0 to 374.0K		$\pm 0.15\% \pm 1$ digit *4 to 50K: $\pm 0.3\% \pm 1$ digit

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

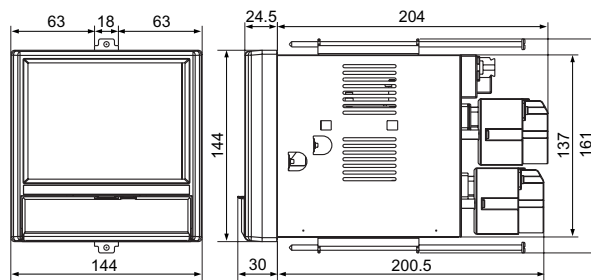
W-WRe26, WRe5-WRe26, PtRh40-PtRh20, Platinel II, NiMo-Ni, Cr-AuFe : ASTM Vol14.03

U (Cu-CuNi), L (Fe-CuNi) : DIN43710

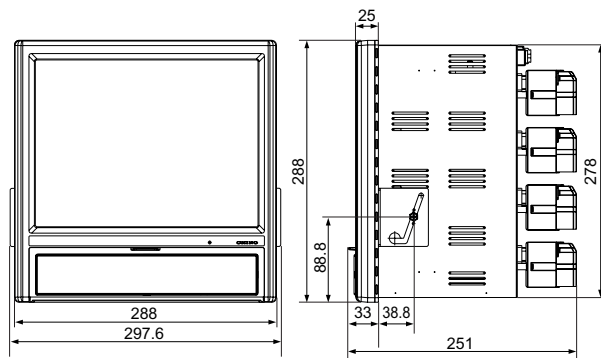
Pt100 : IEC751(1995), JIS C1604-1997 JPt100 : JIS C1606-1989

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 2000/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) 2011. 6

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