# KR2000/3000 SERIES
# GRAPHIC RECORDER with measured data protection

PERFORMANCE SPECIFICATION CHINO

**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)

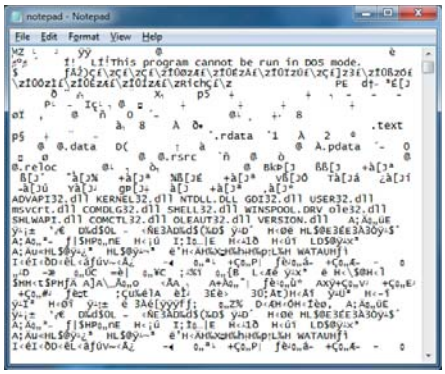
**Digital input/ alarm output (option)**
- 0: None
- 1: Alarm output 12 points (a contact)
- 2: Alarm output 6 points (c contact)
- 3: Alarm output 24 points (a contact)
- 4: Alarm output 12 points (c contact)
- 5: Alarm output 12 points (a contact) + 6 points (c contact)
- A: Digital input 8 points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

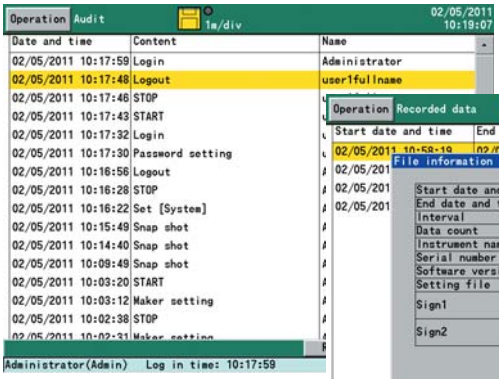
* Example when opened by word pad.



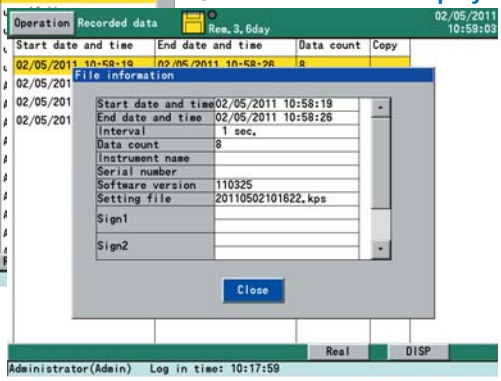

## ■ AUDIT TRAIL

Electronic signature to electronic record file.
Display audit operation.

### ●Audit trail screen



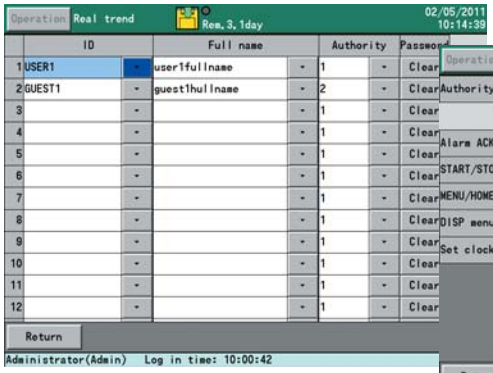

### ●File information display



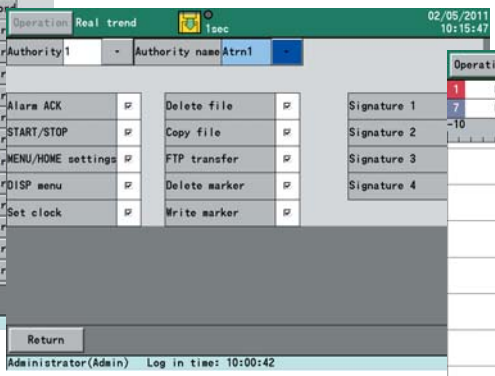

## ■ LOGIN FUNCTION

Register up to 5 administrators and 100 general users and only registered users can access.
Set 10 kinds of access authority and signature level.

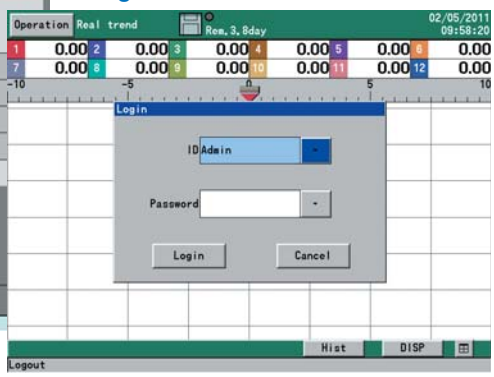
### ●Login user registration




### ●Authority & signature level



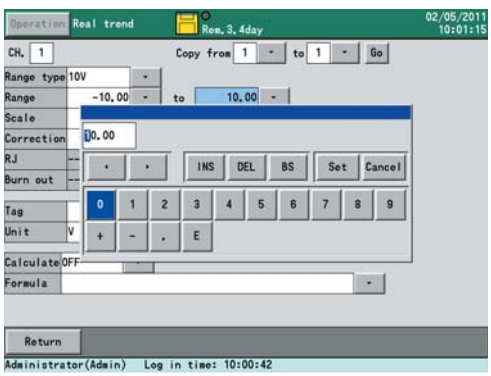

### ●Login screen




## Smooth Operation by touch screen! KR3000 SERIES

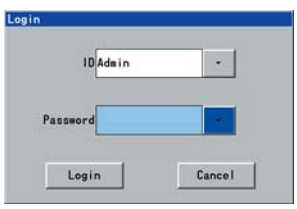
### Input / Computation setting

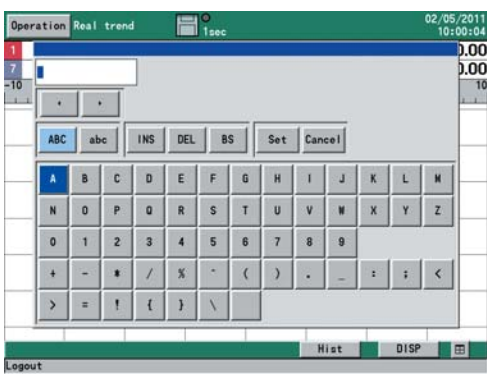
Easy setting and display




### Login operation

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

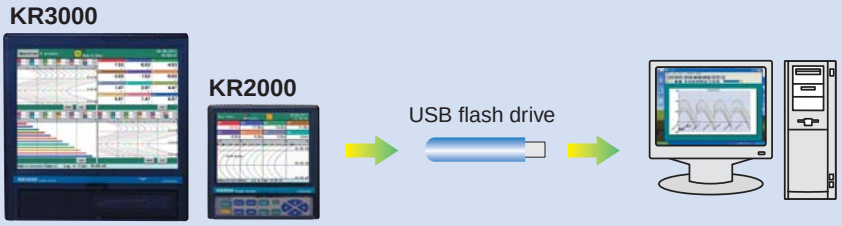


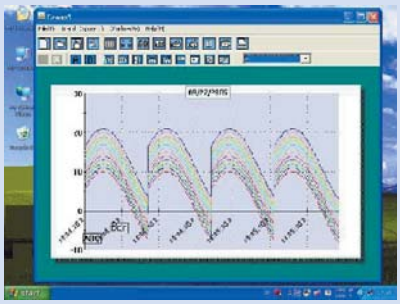
# Data replay, CSV conversion

## 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.




●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 50ºC, 20 to 80%RH
Power voltage --- 90 to 264V AC
Power frequency --- 50/60Hz2%
Attitude --- left/right/forward tilting 0ºC, 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**2**, pollution level 2, measuring category**2**

*The indication equivalent to 1mV may vary under the test environment by EMC directives.

## ■ OPTION SPECIFICATIONS

Please see standard version's PS sheets.

PERFORMANCE SPECIFICATION

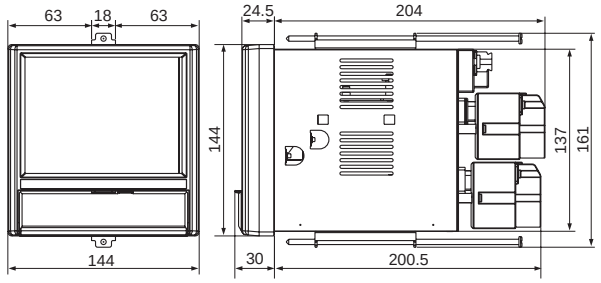
## ■ MEASURING RANGES

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

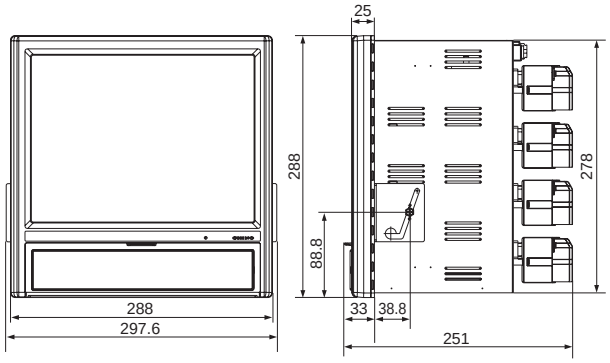
The accuracy ratings are converted into the measuring range under reference operatingcondition. Thermocouple input does not contain reference junction compensation accuracy.
K,E,J,T,R,S,B,N : IEC584,JIS C1602-1995
W-WRe26,WRe5-WRe26,PtRh40-PtRh20,Platinel2,NiMo-Ni,Cr-AuFe : ASTM Vol14.03
U(Cu-CuNi),L(Fe-CuNi) : 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<br>*Internet Explorer 6.0 or later |
| **Memory** | 256MB or more<br>(512MB or more recommended) |
| **Disk drive** | CD-ROM drive: 1 drive or more<br>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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