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□□□

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)

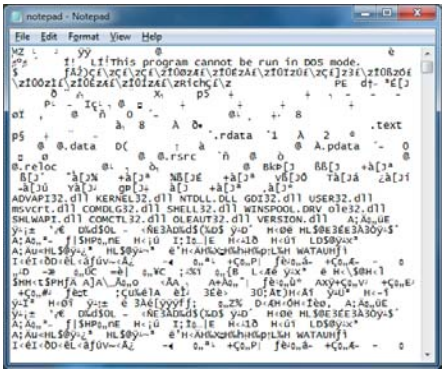
Carrying handle & feet (option)
- A : None
- T : With carrying handle & feet

■ PREVENTING FALSIFICATION OF DATA

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

●Binary file example

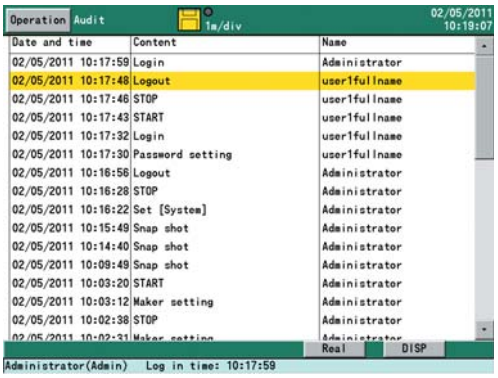
* Example when opened by word pad.
Unable to check the contents.



■ AUDIT TRAIL

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 be referred by ZAILA-P exclusive application software.

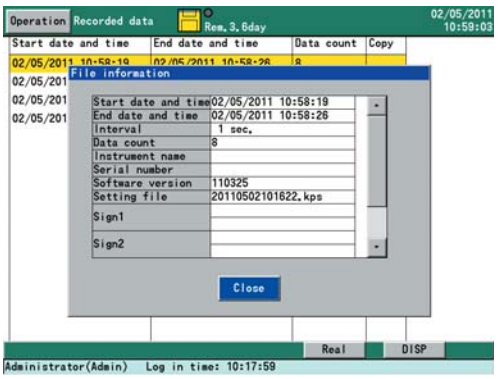
●Audit trail screen



■ Electronic signature

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

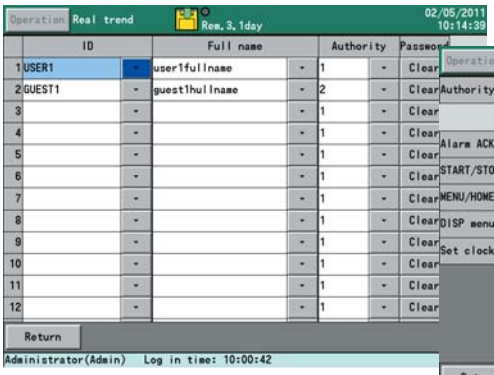
●File information display



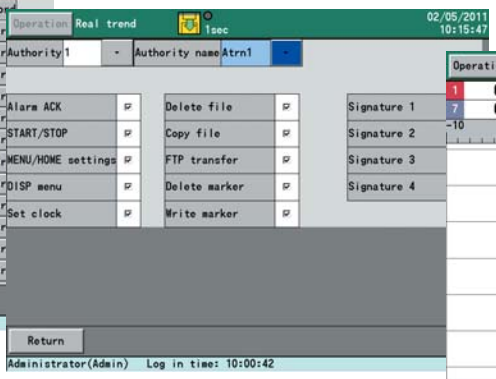
■ LOGIN FUNCTION

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

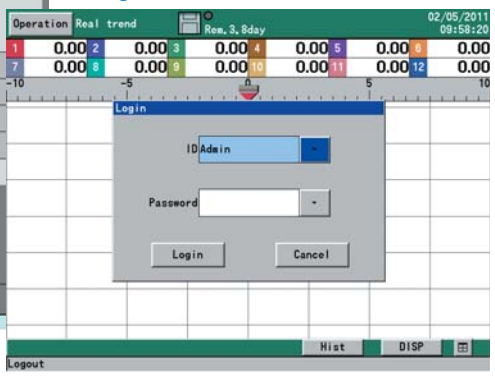
●Login user registration



●Authority & signature level



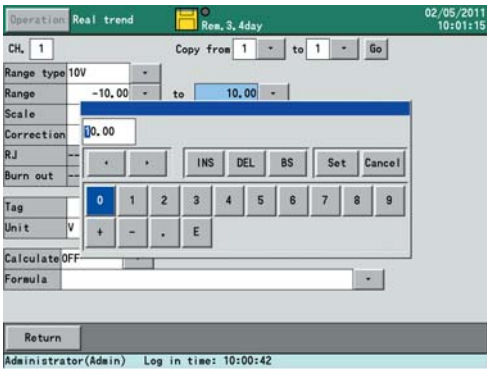
●Login screen



Smooth Operation by touch screen! KR3000 SERIES

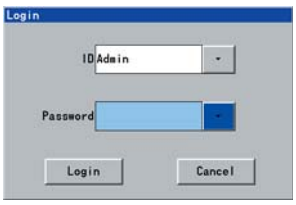
Input / Computation setting

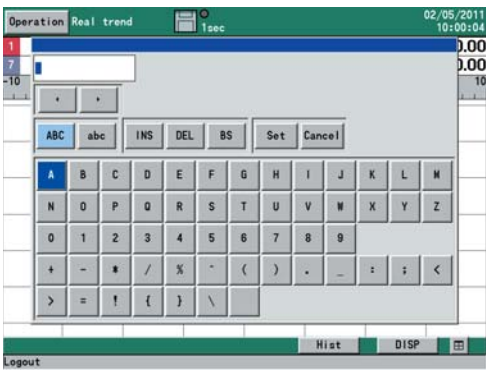
Easy setting and display



Login operation

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





Data replay, CSV conversion

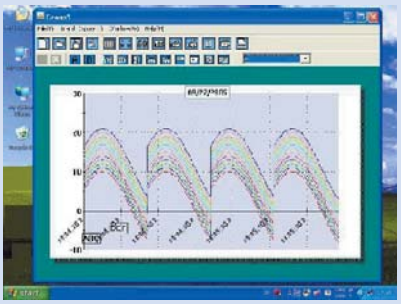
ZAILA-P Exclusive application software (standard attached)

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 or fowarding to networkl server.

KR3000

KR2000

●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 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 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 specfications are common to stanard versions.

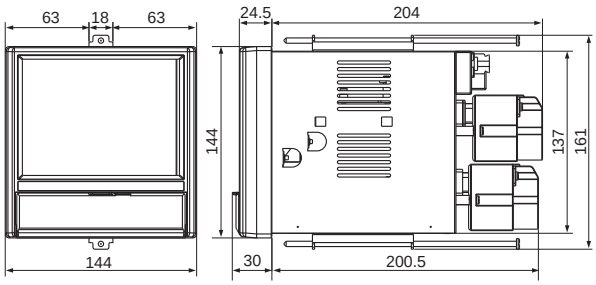
MEASURING RANGES

Input type		Messureing 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	0.1%1digit
(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℃ -200.0 to 600.0℃ -200 to 1370℃	0.1%1digit *-200 to 0℃: 0.2%1digit
	E	-200.0 to 200.0℃ -200.0 to 350.0℃ -200 to 900℃	
	J	-200.0 to 250.0℃ -200.0 to 500.0℃ -200 to 1200℃	
	T	-200.0 to 250.0℃ -200.0 to 400.0℃	
	R	0 to 1200℃ 0 to 1760℃	0.1%1digit *0 to 400℃: 0.2%1digit
	S	0 to 1300℃ 0 to 1760℃	
	B	0 to 1820℃	0.1%1digit *0 to 400℃:Out of accuracy ratings *400 to 800℃: 0.15%1digit
	N	-200.0 to 400.0℃ -200.0 to 750.0℃ -200 to 1300℃	0.15%1digit *-200 to 0℃: 0.3%1digit
	W-WRe26	0 to 2315℃	0.15%1digit *0 to 100℃: 4%1digit *100 to 400℃: 0.5%1digit
	WRe5-WRe26	0 to 2315℃	0.2%1digit
	PtRh40-PtRh20	0 to 1888℃	0.2%1digit *0 to 300℃: 1.5%1digit *300 to 800℃: 0.8%1digit
	NiMo-Ni	-50.0 to 290.0℃ -50.0 to 600.0℃ -50 to 1310℃	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
	Platinel**2**	0.0 to 350.0℃ 0.0 to 650.0℃ 0 to 1395℃	0.15%1digit
	U	-200.0 to 250.0℃ -200.0 to 500.0℃ -200.0 to 600.0℃	0.15%1digit *-200 to 0℃: 0.3%1digit
	L	-200.0 to 250.0℃ -200.0 to 500.0℃ -200 to 900℃	0.1%1digit *−200 to 0℃: 0.2%1digit
RTD	Pt100	-140.0 to 150.0℃ -200.0 to 300.0℃ -200.0 to 850.0℃	0.1%1digit *-140.0 to 150.0℃ 700 to 850℃: 0.15%1digit
	JPt100	-140.0 to 150.0℃ -200.0 to 300.0℃ -200.0 to 649.0℃	0.1%1digit *-140.0 to 150.0℃: 0.15%1digit
	Pt50	-200.0 to 649.0℃	0.1%1digit
	Pt-Co	4.0 to 374.0K	0.15%1digit *4 to 50K: 0.3%1digit

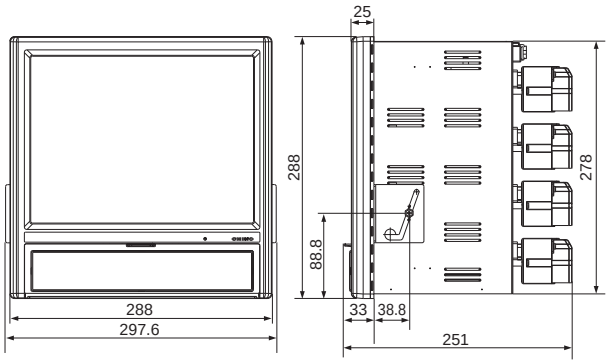
The accuracy ratings are converted into the measuring range under reference operatingcondition. Thermocouple input does not contain reference junction compensation accuracy.
K,E,J,T,R,S,B,N : IEC584,JIS C1602-1995
W-WRe26,WRe5-WRe26,PtRh40-PtRh20,Platinel Ⅱ,NiMo-Ni,Cr-AuFe : ASTM Vol14.03
U(Cu-CuNi),L(Fe-CuNi) : 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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