KR2S Series are advance touch screen display (Keyless) paperless Graphic Recorder with high performance and high operating function along with high visibility 5.7” VGA TFT Color LCD display. Universal input with high speed of sampling rate 100msec and high accuracy rating of ±0.1% realized. Measured data is stored into memory and support up to 8GB through USB and CF Card. As it can be monitored by a web browser display on several computers on intranet or internet, FTP transfer of data file and E-mail notification are also available.

- **FEATURES**
  - Employing clear 5.7”VGA TFT color LCD display
    - Large-sized high visibility display with various display functions.
    - Real time/Historical trend screen, Circular trend screen, Bar-graph screen, Data screen are selectable for various applications.
  - Large capacity of data memory and various recording method
    - USB slot and CF card is equipped as standard memory provided 2GB and optionally expandable up to 8GB. Various data storing methods are selectable such as schedule programming by time of day and time of date, recording start-up by external signal, and event and data logging of before and after trigger points for alarm.
  - Multi points recording with high speed/accuracy
    - High-speed recording of approximately 100msec for 4 points and 1 sec for 6/12 points and high accuracy of ±0.1% were realized. Stable measuring and recording are possible with high speed. Withstand voltage between input channels is as high as 1000V AC (Excluding resistance thermometer input).
  - Direct writing on the screen
    - With attached touch pen, various comments can be written on the screen.
  - Extend inputs with CHINO controllers
    - KR2S can communicate with up to 16 CHINO controllers for parameter settings and read/record of measuring values through low-order communications (Option).
  - Easy operating and programming without manual
    - Readout of data and files are possible by connecting through an USB memory stick for PC.
  - LAN network capability (Option)
    - Various networked environment such as remote monitoring by browser, FTP, HTTP, SNTP and DHCP server and E-mail notification are applied when Ethernet communication interface is used.
  - Safety system and reliability
    - No battery backup needed for recorded storage data.
  - Analyzing/data acquisition application software (Optional)
    - It is easy to replay and edit the recorded data file. Replay display has functions of vertical/horizontal trend, circular trend and also wave-analyzing and marking by using the cursor.
  - Custom graphic screen for each applications (NEW)
    - By using option custom graphic screen function, it can display the graphic screen which the user made by PC software KR Screen Designer (optional). Create letters, rectangle, oval, line, etc by drawing tool and allocate KR measuring data while making the background by JPEG or other images. By lower communication, controller SV, MV, PID can also be changed. Register up to 5 screens and its screens are switchable.

- **MODELS**

<table>
<thead>
<tr>
<th>KR2S</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Measurement point/sampling rate**
  - 6: 6 points/1 sec.
  - 12: points/1 sec.

- **Communication interface**
  - G: Ethernet + low/high order communications [RS485] (standard)
  - E: Ethernet
  - B: Ethernet + low order communications [RS232C D-Sub 9 pin] *1
  - *1 Barcode reader exclusive specification

- **N: None**

- **Alarm output, Contact input (option)**
  - 0: None
  - 2: Mechanical relay output
    - 4 points ‘c’ contact
  - 7: Digital input (4 points)
  - 6: Mechanical relay output
    - 2 points ‘c’ contact
    + Digital input (2 points)

- **Installation type**
  - A: Device mounting (panel mounting type)
  - T: Portable type (Grip and rubber feet attached)*1

- **Others (option)**
  - -NNN: None
  - -1NN: Custom graphic screen
  - -2NN: High Accuracy Temperature Converter KT-M input
    - (Com. interface G)
  - -3NN: Custom graphic screen + High Accuracy Temperature converter KT-M input
    - (Com. interface G)
  - -N1: Barcode reader specifications
    - (Barcode reader/other are sold separately) (Com. interface B)*1
  - -N2: Barcode recipe specifications
    - (Barcode reader/other are sold separately) (Com. interface B)*1
  - -NNP: Past profile replay

* Non-conformance to CE

* If the recording cycle is set less than 500ms (100 to 500 ms), input channel point becomes 100ms for 4 points automatically.

---

PSE-801F
**SCREENS**

Sharp touch panel display based on Human Engineering such as color, line, thickness, key position. Adopts VGA (640X480) which has 4 times the resolution of conventional model.

- **Data screen**
  - Operation: Data display
  - Data: 9.6, 20.0, 30.0
  - PIPE LINE A, B, C, D
  - PIPE A, B, C, D
  - PIPE C, E
  - PIPE D, E
  - PIPE E, F
  - PIPE F, G
  - PIPE G, H
  - PIPE H, I
  - PIPE I, J

- **Bar-graph screen**
  - Operation: Bar graph
  - Group 1: 80.0, 90.0
  - Group 2: 80.0, 90.0

- **Real-time trend screen**
  - Operation: Real-time trend
  - Group 1: 96.7, 36.7, 36.7, 23.3
  - Group 2: 36.7, 23.3, 53.3

- **Graphic screen**
  - Enable to create custom display for each user.

- **Pen writing**
  - Free writing by 16 colors.

- **Circular trend screen**
  - High-resolution color and easy to read curve.

- **2-Zone screen**
  - Split the trend in 2-zones and monitor.

- **Dual trend screen**
  - 2 split display for real time trend and historical trend. Scroll available for historical trend.

- **Historical trend screen**

- **Math functions**
  - Easy to set and manage the formula.

- **Various communication function**
  - Enable to use E-mail, FTP, HTTP, SMTP, and DHCP.
  - (Automatic acquisition IP address)

---

*Graphic screen feature is provided optionally. BMP image has to be prepared by customer.
**INPUT SPECIFICATIONS**

- **Measuring points:** 6 points, 12 points
- **Input types:** Universal
- **DC voltage:** -13.8V, +7.8V, +38.8V, +100V, +150V, +12V, +18V, ±10V, ±18V, ±36V
- **DC current:** -5V, 24V, 24V (optional)
- **Input impedance:** 100KΩ, 1MΩ
- **Receiver:** R2, S, E, T, TNP, RE-20, RE-28, Phlips, NMO-N, CR-Auf, U, L
- **Accuracy ratings:** Refer to the table of measuring range and accuracy rating
- **Reference junction compensation accuracy:** 
  - R, G, J, T, TNP, Phlips, ±0.5°C or less
  - R2, S, RE-28, Phlips, RE-28, NMO-N, CR-Auf, U, L, ±1°C or less
- **Sampling rate:** Approximately 1/2 to 12 points
- **Burnout:** All firing points are aligned as 4 points and sampling rate will automatically set at 4 points and sampling rate will be 100ms.
- **Input resistance:**
  - Thermodiode input (burnout detected): ±10V DC
  - DC voltage input (4V or less): ±0.1Ω or less
  - DC voltage input (5V or more): ±0.5Ω or less
- **Input resistance (external):**
  - Approx. 1 MΩ
  - DC voltage input: ±50V or 0V: Approx. 1 MΩ
- **Maximum input voltage:**
  - DC voltage input (2V or less): ±50V or 0V: Approx. 1 MΩ
- **Dielectric strength between channels:**
  - 5000V AC or more between each channel
  - (High strength semiconductor relay used)
- **Common mode rejection ratio:**
  - 12000 or more
  - Series mode rejection ratio: 500 or more

**RECORDING SPECIFICATIONS**

- **Additional memory:** Up to 4GB
- **Recommended:** 256MB standard attached, Apector Technology mode
- **Recording cycle:**
  - 100, 200, 500ms (When only 4 inputs)
  - 1, 2, 3, 5, 10, 15, 20, 30, 60s
- **Logging data:**
  - Measured data: file (group name, time of day, month and year of recording start, file name, measured data, alarm status types)
  - Setting parameter
- **Storing types:**
  - Binary/CSV
- **Storing methods:**
  - Manual start/stop
  - Schedule (designated for time of day and date)
  - Trigger signal (alarm event, digital input)
  - Data recording of before and after trigger
- **Pre-trigger is selectable**
- **Measuring numbers of pre-trigger:** Maximum 950 data
- **Recording group:**
  - Up to 2 groups of 12 patterns are programmable
  - Up to 5 groups of 24 points/patterns can be programmed
  - (Up to total of 100 points)

**COMPUTATION SPECIFICATIONS**

- **Computation points:** Maximum 44 points
- **Computation cycle:** 1000 points (every points
- **Computation types:**
  - Arithmetic operations (Up to 64 points can be programmed per channel)
  - Logical operations (Up to 64 points can be programmed per channel)
  - General functions (Up to 64 points can be programmed per channel)
  - Integration operations (Up to 64 points can be programmed per channel)
  - Channel data operations (Up to 64 points can be programmed per channel)
  - Others (Up to 64 points can be programmed per channel)

**ALARM SPECIFICATIONS**

- **Setup:**
  - Up to 4 alarms can be programmed per channel
  - Alarm type:
    - Upper limit, lower limit, differential upper limit, differential lower limit (deadband is selectable, alarm output)
  - Delay function:
    - Alarm delay — 0 to 3600 seconds
  - Alarm settings:
    - Refer to option specification

**DISPLAY SPECIFICATIONS**

- **Display:**
  - 5.7" VGA TFT color LCD
- **Display types:**
  - Measured data display (Trend screen, Data screen, Bar-graph screen)
- **Trend screen:**
  - 12 colors selectable
  - Display screen — 5 screens (5 groups)
  - Display points — Maximum 44 points per screen
  - Time axis direction: Vertical or horizontal
  - Line width: 10/5/3 dot selectable
  - Scale display: 4 scales
  - Tag data display: Side or horizontal
- **Bargraph screen:**
  - 12 colors selectable
  - Display screen — 5 screens (5 groups)
  - Display points — Maximum 44 points per screen
- **Data screen:**
  - Maximum 44 points per screen
  - Display contents — Measured value, channel, unit, alarm status
- **LCD backlight:**
  - Auto/manual OFF function

**COMMUNICATION FUNCTIONS**

- **Network:**
  - Ethernet (10BASE-T, 100BASE-TX)
- **FTP server:**
  - Data file can be read from the network computer
  - Transfer a file/data to a network server
- **SNTP client:**
  - The time can be synchronized to the time of SNTP server
  - Conformed to HTTP1.1: Displays the alarm, information of maintenance by browser software (Internet Explorer 5.0 or later, Netscape 6.0 or later, Opera 7 or later)
- **E-mail:**
  - E-mail alarm (functional at specified time for alarm activation)
  - Notification address: Maximum 8 contacts

**USB Communication**

- **USB communication type:** USB1.1
- **Transfer systems:** Bulk transfer, control transfer
- **File transfer:**
  - Connecting as removable disk drive

**CONNECTIVITY**

- **Web browser**
- **Application**
- **FTP server**
- **Web server**
- **Database server**
- **PLC**
- **KE**
- **DB**
- **Ethernet**

**Data storage in USB memory stick**

- **Data storage in USB memory stick**
- **USB port**
- **Data transfer in USB memory stick**
- **RS485 (Low-order communication)**
<table>
<thead>
<tr>
<th>GENERAL SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power voltage: 100 to 240V AC (universal power supply) 50/60Hz</td>
</tr>
<tr>
<td>Maximum power consumption: 30VA</td>
</tr>
</tbody>
</table>

Reference operating condition:
- Ambient temperature: -21 to 25°C |
- Ambient humidity: 45 to 85%RH |
- Power voltage: 100V AC 110% |
- Power frequency: 50/60Hz ±2% |
- Altitude: <= 1800m, forward/backward 0° |
- Warm-up time: Longer than 30 minutes |

Normal operating condition:
- Ambient temperature: 0 to 50°C |
- Ambient humidity: 20 to 80%RH |
- Power voltage: 90 to 264V AC |
- Power frequency: 50/60Hz ±2% |
- Altitude: <= 1800m, forward/backward 0° |
- Backward tilting 0° to 20° |

Transport condition (at the packed condition on shipment from our factory):
- Ambient temperature: -20 to 60°C |
- Ambient humidity: 5 to 90%RH (No dew condensation) |
- Vibration: 10 to 60Hz, 0.5g (3.5m/s²) or less |
- Impact: 40g (92/N m²) or less |
- Impact: 40g (92/N m²) or less |

Storage condition:
- Ambient temperature: 0 to 50°C |
- Ambient humidity: 5 to 90%RH (No dew condensation) |

Power failure protection:
- Flash memory and SDRAM stores the setting. |
- Flash memory stores the data. |
- Lithium battery back up the clock and parameter RAM for more than 5 years. |

Insulation resistance:
- Secondary terminals and protective conductor terminals: 20MO or more at 500V DC |
- Primary terminals and protective conductor terminals: 20MO or more at 500V DC |
- Primary and secondary terminals: 20MO or more at 500V DC |
- Primary terminals: power terminals (LN), alarm output terminals |
- Secondary terminals: measuring input terminals, digital input terminals, communications terminals |

Dielectric strength:
- Secondary terminals and protective conductor terminals: 1 minute at 500V AC |
- Primary terminals and protective conductor terminals: 1 minute at 1500V AC |
- Primary terminals: power terminals (LN), alarm output terminals |
- Secondary terminals: measuring input terminals, digital input terminals, communications terminals |

Case assembly material:
- Front bezel: ABS resin |
- Case: Steel |
- Color: Front bezel - Black (equivalent to Munsell N3.0) |
- Paint color: gray (equivalent to Munsell N7.0) |
- Weight: 2.1kg (12 points input with full options) |

Mounting:
- Panel mounting |

Terminal screws:
- Power terminals: protective conductor terminals/communications terminals: M4.0 |
- Measuring input terminals: alarm output terminals, digital input terminals: M3.0 |
- Communications terminals: M3.0 |

STANDARDS:
- Conformed to IEC629 IP54 (recorder front panel) |
- CE marking |
- EMC directive: EN61326-1 |
- Low voltage directive: EN61010-1, EN61010-2-030 |
- RoHS directive: EN50581 |
- Pollution Degree 2, Measurement Category II |

OPTION SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Options</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm output</td>
<td>Mechanical relay (c. contact) output for alarm activation and input alarm</td>
</tr>
<tr>
<td>Output point: 4 or 2 points</td>
<td></td>
</tr>
<tr>
<td>Contact capacity: resistive load 3A, inductive load 1.5A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital input (Non-voltage contact input)</th>
<th>Pulse input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum 10Hz pulse input</td>
<td></td>
</tr>
<tr>
<td>Used for low-rate, operation time and frequency</td>
<td></td>
</tr>
</tbody>
</table>

External drive:
- The following operations are available (selectable by parameter) |
- Data memory triggering |
- Marker display |
- Integrated calculation reset |

Communications interface:
- High and low-order communication |
- RS485 (MODBUS) |
- Create one function from the following 3 functions. |
- Communication interface for high-order unit |
- Recording input data of CHINO products connected to a low-order unit and data in PLC register. |
- Display and record parameter setting, measured value, setting value, etc. up to 18 CHINO controllers. |
- Recording points: 6-channel specification - 34 points |
- 12-channel specification - 28 points |
- JU, JW, SE3/000 |

Transfer input data of KR5/S to PLC. |
- The input data can be written on PLC only. |
- Data writing points: 44 points |

Connectable PLC: Mitsubishi Electric Corporation |
- MELSEC-Ant, QnA, QnAS, FX series (t/c frame only) |
- OMRON Corporation |
- SYSMAC series |

Custom Graphic Screen:
- By KR Screen Designer (optional), create graphic screen by PC and display to KR screen via CF card. |
- KR measuring value can be located on the screen. |

KT-M Input:
- Digital communication (RS485) with high accuracy temperature converter KTM1 |

Others:
- Handle and rubber feet |

ACCESSORIES (SOLD SEPARATELY):

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistor for DC current input 100Ω</td>
<td>For 50mA</td>
</tr>
<tr>
<td>Resistor for DC current input 200Ω</td>
<td>For 20mA</td>
</tr>
<tr>
<td>CF card</td>
<td>12MB, 256MB, S1 MB, 1GB, 2GB, 4GB, 8GB</td>
</tr>
<tr>
<td>Card adapter</td>
<td>For PC card</td>
</tr>
</tbody>
</table>

KR SCREEN DESIGNER (sold separately) (NEW):

Model: KS3200-000 |
- Windows Vista/7/8 |
- Your OS recommended requirements or better |
### MEASURING RANGES

<table>
<thead>
<tr>
<th>Input type</th>
<th>Measuring range</th>
<th>Accuracy ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC voltage</td>
<td>13.80 to 13.80mV</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td></td>
<td>-27.60 to 27.60mV</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td></td>
<td>-50.00 to 50.00mV</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td></td>
<td>-2.000 to 2.000mV</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>(with built-in voltage divider)</td>
<td>-5.000 to 5.000V</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>K</td>
<td>-200.0 to 300.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>E</td>
<td>-200.0 to 350.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>J</td>
<td>-200.0 to 900.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>T</td>
<td>-200.0 to 200.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>R</td>
<td>0 to 1200°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>S</td>
<td>0 to 1760°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>B</td>
<td>0 to 1820°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>N</td>
<td>-200.0 to 400.0°C</td>
<td>±0.15% stdgt</td>
</tr>
<tr>
<td>W-RRe25</td>
<td>0 to 2315°C</td>
<td>±0.2% stdgt</td>
</tr>
<tr>
<td>WRe5-WRe25</td>
<td>0 to 2315°C</td>
<td>±0.2% stdgt</td>
</tr>
<tr>
<td>PRh40-PRh20</td>
<td>0 to 1888°C</td>
<td>±0.2% stdgt</td>
</tr>
<tr>
<td>NMn-N</td>
<td>-50.0 to 280.0°C</td>
<td>±0.2% stdgt</td>
</tr>
<tr>
<td>CR-AuFe</td>
<td>0.0 to 280.0K</td>
<td>±0.2% stdgt</td>
</tr>
<tr>
<td>Platinell</td>
<td>0.0 to 350.0°C</td>
<td>±0.15% stdgt</td>
</tr>
<tr>
<td>U</td>
<td>-200.0 to 250.0°C</td>
<td>±0.15% stdgt</td>
</tr>
<tr>
<td>L</td>
<td>-200.0 to 250.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>Pt100</td>
<td>-140.0 to 150.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>JPt100</td>
<td>-140.0 to 150.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>Pt50</td>
<td>-200.0 to 649.0°C</td>
<td>±0.1% stdgt</td>
</tr>
<tr>
<td>PtCo</td>
<td>4.0 to 374.0K</td>
<td>±0.15% stdgt</td>
</tr>
</tbody>
</table>

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

### APPLICATION SOFTWARE ZAILA (sold separately)

The software is applied for replay display/wave editing operation of recorded data in KR2S series. It has replay display of vertical/horizontal trend and circular trend function, and also analyzing function such as magnify/reduce/partially magnify of graphs and message insert.

#### Display examples

- Trend display window (vertical flow)
- Trend display window (horizontal flow)
- Trend display window (circular trend)
- Bar-graph

#### Main functions

- **Trend display**
  Selectable from trend display window (vertical flow, horizontal flow) and circular trend display window.
- **Continuous replay display window**
  Trend is scrolled continuously (automatically). Scroll changes by speed and renewal data no.
- **Data list display window**
  Displays registered data as list display.
- **Bar-graph**
  Displays by bar. Message can be inserted into bar-graph.
- **Data between markers**
  Displays date/time, time difference between 2 data, data difference, maximum, minimum, average, standard deviation and median among all data.
- **Alarm display**
  Points for alarm activation at each level are displayed on a trend graph.
- **Settings**
  Cursor, trend line, scale axis, time axis, title input on the graph, graph assistant and magnify/reduce/rotation of graphs
- **Data conversion**
  Exporting to Excel, and converting to CSV file or TEXT file are available.

### ENVIRONMENT

<table>
<thead>
<tr>
<th>CPU</th>
<th>1 GHz or better</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Windows 7 / 8.1 / 10</td>
</tr>
<tr>
<td></td>
<td>*Internet Explorer 6.0 or later</td>
</tr>
<tr>
<td>Memory</td>
<td>Your OS recommended memory or larger</td>
</tr>
<tr>
<td>Disk drive</td>
<td>CD-ROM drive: 1 drive or more</td>
</tr>
<tr>
<td></td>
<td>Hard disk drive: Disk space of 1 drive or more for 100MB or more</td>
</tr>
<tr>
<td>Language</td>
<td>Japanese, English, Chinese (simplified and traditional characters), Korean</td>
</tr>
</tbody>
</table>

### Data acquisition software “KIDS”

On-line acquisition of measured data and replay acquisition data are available.
# TERMINAL ARRANGEMENT

- **Alarm relay output (4 points 'c' contact) (option)**
- **Digital input (No voltage contact input 4 points)**
- **Alarm relay output (2 points 'c' contact) + Digital input (No voltage contact input 2 points) (option)**
- **Communication terminal**

## DIMENSIONS

- **PANEL CUTOUT**

---

**CHINO CORPORATION**

32-8 KUMANO-CHO, ITABASHI-KU, TOKYO 173-8632  
Telephone: +81-3-3956-2171  
Facsimile: +81-3-3956-0915  
E-mail: inter@chino.co.jp  
Website: www.chino.co.jp

Specifications subject to change without notice. Printed in Japan (I) 2019. 9