KR3S Series are network compatible advanced paperless Graphic Recorder with high performance and high operating function along with high visibility 10.4" TFT Color LCD touch-screen display. Universal input with high speed of sampling rate 1sec. and high accuracy rating of ±0.1% realized. Measured data is stored into memory and supported 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**
- **Adopting clear 10.4" TFT color LCD display**
  - High visibility display with various display functions.
  - Real time/Historical trend screen, Bar-graph screen and numeric display are selectable for various applications.
- **Large capacity of data memory and various recording method**
  - USB slot and CF card is equipped as standard memory and optionally expandable up to 8 GB. 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 stable recording with high speed accuracy**
  - High-speed recording of approximately 1sec. for every points and high accuracy of ±0.1% are 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).
- **Easy operating and programming without manual**
  - With touch screen display, operation and settings can be performed easily by touching buttons on the display.
- **Direct writing on the screen**
  - With attached touch pen, various comments can be written on the screen.
- **Extend inputs with CHINO controllers**
  - KR3S can communicate with up to 16 CHINO controllers for parameter settings and read/record of measuring values through low-order communications (Option).
- **USB port provided in front**
  - Readout of data and files are possible by connecting through an USB memory stick for PC.
- **Support LAN network (Option)**
  - Through Ethernet communications (Option), various functions such as remote monitoring by a browser, and FTP server, and Email notification etc. are supported.
- **Analyzing/data acquisition application software (Optional)**
  - It is easy to replay and edit the recorded data file with the software. 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 optional custom graphic screen function, it can display the graphic screen which the user created by PC software KR Screen Designer (optional). Create letters, rectangle, oval, line, etc background by JPEG or other images. By lower communication, controller SV, MV, PID can also be changed. Register up to 5 screen and its screens are switchable.

**MODELS**

- **Measurement point/sampling rate**
  - 21: Input 12 points/1 sec.
  - 41: Input 24 points/1 sec.
  - 61: Input 36 points/1 sec.
  - 81: Input 48 points/1 sec.

- **Communications interface**
  - G: Ethernet
  - B: Ethernet + low order communications (RS232C D-Sub 9 pin) *1
  - *Barcode reader exclusive specification
  
- **Alarm output, Contact input (option)**
  - 0: None
  - 2: Mechanical alarm relay output (4 points "c" contact)
  - 7: Digital input (4 points)
  - 8: Mechanical alarm relay output (2 points "c" contact)
  - + Digital input (2 points)

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

- **Others (option)**
  - -NNN: None
  - -NN: 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)
  - -N1N: Barcode reader specifications (Barcode reader/their are sold separately) (Com. interface B) *1
  - -N2N: Barcode recipe specifications (Barcode reader/their are sold separately) (Com. interface B) *1
  - -N3N: Past profile replay

*1 Non-conformance to CE
KR3S SERIES

### 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**
- **Bar-graph screen**
- **Real-time trend screen**
- **Graphic screen**
- **Pen writing**
- **Circular trend screen**
- **2-Zone screen**
- **Dual trend screen**
- **Historical trend screen**
- **Math functions**
- **Various communication function**

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

**Rated power voltage:** 100 to 240V AC (universal power supply) 50/60Hz

**Maximum power consumption:** 60VA

**Reference operating condition:**
- Ambient temperature: 21 to 25°C
- Ambient humidity: 45 to 80%RH
- Power voltage: 100V AC ± 10%
- Power frequency: 50/60Hz ± 5%
- Altitude: Level/fight, forward 0°, backward 0°
- Warm-up time: Longer than 30 minutes

**Normal operating condition:**
- Ambient temperature: 0 to 50°C
- Ambient humidity: 5 to 90%RH (No dew condensation)
- Power voltage: 100V AC ± 10%
- Power frequency: 50/60Hz ± 5%
- Altitude: Level/fight, forward 0°, backward 0° to 20°
- Storage condition: Ambient temperature: -20 to 60°C
- Ambient humidity: 5 to 90%RH (No dew condensation)

**Power failure protection:** Flash memory stores the settings and the data.

**Lithium battery backs up the clock and parameter RAM for more than 5 years.

**Insulation resistance:**
- Secondary terminals and protective conductor terminals: 200MΩ or more at 500V DC
- Primary terminals and protective conductor terminals: 200MΩ or more at 500V DC
- Primary and secondary terminals: 200MΩ or more at 500V DC
- Power terminals: power terminals (L, N), alarm output terminals
- Secondary terminals: measuring input terminals, digital input terminals
- Diodelectric strength:
  - Secondary terminals and protective conductor terminals: 1 minute at 500V AC
  - Primary terminals and protective conductor terminals: 1 minute at 1500V AC
  - Primary and secondary terminals: 1 minute at 2000V AC
- Power terminals: power terminals (L, N), alarm output terminals
- Secondary terminals: measuring input terminals, digital input terminals
- Communication terminals

**Case assembly material:**
- Front bezel: Polycarbonate and ABS resin (frame)
- Case: Steel
- Color: Front bezel: Black (equivalent to Munsell N3.0)
- Case: Gray (equivalent to Munsell N7.0)
- Weight: Approximately 5.4kg (at maximum)

**Mounting:**
- Rail mounting

**Terminals screws:**
- Power terminals: protective conductor terminals: M4.0
- Measuring input terminals: alarm output terminals: digital input terminals: M3.5
- Communications terminals: M3.0

**SAFETY STANDARDS**

**IP:** Conformed to IEC529-IP54 (recorder front panel)

**CE marking:**
- EMC directive: EN61326-1
- Low voltage directive: EN61010-1, EN61010-2-030
- RoHS directive: EN50581
- Overvoltage (installation) category II, 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, contact output for alarm activation and input alarm output. Contact capacity: resistive load 3A, inductive load 1.5A</td>
</tr>
<tr>
<td>Digital input</td>
<td>Pulse input, 10Hz pulse input, used for flow rate, operation time and temperature</td>
</tr>
<tr>
<td>External drive</td>
<td>The following functions are available ( selectable by parameter): Communications interface, high and low-order unit (RS485, MODBUS)</td>
</tr>
</tbody>
</table>

**Communications interface**
- High and low-order communication
- Transfer input data of KR3S to PLC
- The input data can be written on PLC only
- Data writing points: 44 points
- Connectable PLC: Mitsubishi Electric Corporation MELSEC A, QnA, QnAS, FX series (1c frame only)
- OMRON Corporation SYSMAC series

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

**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 250Ω</td>
<td>For 20mA</td>
</tr>
<tr>
<td>CF card</td>
<td>128MB, 256MB, 512MB, 1GB, 2GB, 4GB, 8GB</td>
</tr>
<tr>
<td>Card adapter</td>
<td>For PC card</td>
</tr>
</tbody>
</table>

**KR SCREEN DESIGNER (sold separately)**

Model: KS3200-000
- OS: Windows Vista/7/8
- Others: Your OS recommended requirements or better
### MEASURING RANGE/ACCURACY RATINGS

<table>
<thead>
<tr>
<th>Input type</th>
<th>Measuring range</th>
<th>Accuracy ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-13.80 to</td>
<td>13.80mV</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-27.60 to</td>
<td>27.60mV</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>-59.90 to</td>
<td>59.90mV</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>200.0mV</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>-500.0 to</td>
<td>500.0mV</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>-2,000 to</td>
<td>2,000mV</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>K</td>
<td></td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>300.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>600.0°C</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>-200.0</td>
<td>1370.0°C</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>200.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>250.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0</td>
<td>900.0°C</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>J</td>
<td></td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>250.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>500.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0</td>
<td>1200.0°C</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>T</td>
<td></td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>250.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>-200.0 to</td>
<td>400.0°C</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>R</td>
<td>0 to 1200°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>S</td>
<td>0 to 1370°C</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>B</td>
<td>0 to 1820°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>N</td>
<td>-200.0 to 400.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>W-WRe26</td>
<td>0 to 2131°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>PRh40-PRh20</td>
<td>0 to 1888°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>NMo-N</td>
<td>-50.0 to 290.0°C</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>CR-AuFe</td>
<td>0.0 to 280.0K</td>
<td>±0.2% stdtg</td>
</tr>
<tr>
<td>Platnell</td>
<td>0.0 to 350.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>U</td>
<td>-200.0 to 250.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>L</td>
<td>-200.0 to 250.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>Pt100</td>
<td>-140.0 to 150.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>JPt100</td>
<td>-140.0 to 150.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>Pt50</td>
<td>-200.0 to 649.0°C</td>
<td>±0.1% stdtg</td>
</tr>
<tr>
<td>PtCo</td>
<td>4.0 to 374.0K</td>
<td>±0.1% stdtg</td>
</tr>
</tbody>
</table>

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

### APPLICATION SOFTWARE (Sold Separately)

#### Data analysis software "ZAILA"

The software is applied for replay display/wave editing operation of recorded data in KR 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 is changed by changing scroll speed and numbers of renewal data.
  - **Data list display window**
    - Displays registered data as a list display.
  - **Bar-graph**
    - Displays data using bars. Message can be inserted into the 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 feature**
    - 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.
- Alarm relay output (4 points 'c' contact) (optional)
- Digital input (Non-voltage contact input 4 points) (optional)
- Alarm relay output (2 points 'c' contact) + Digital input (Non-voltage contact input 4 points) (optional)
- Communications terminal
- PANEL CUTOUT AND MINIMUM CLEARANCE

Specifications subject to change without notice. Printed in Japan (1) 2019, 9