KH300A-G Paperless recorder







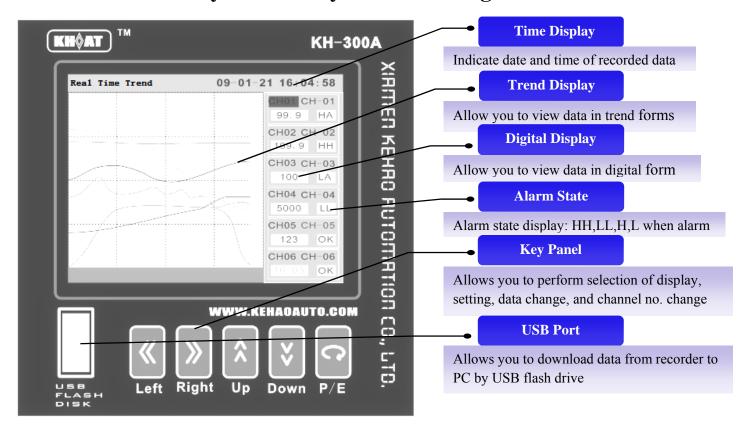


Intelligent Color Paperless Recorder



Memory Flash Drive Data Saving

Provides flexibility and variety in the handing of record data



Long Time Memory

8MB built in memory for long time memory. Record time =45days÷Channel No.s x Record interval time

Universal Input, 6 Points Max. Recording

Photoelectrical isolated universal input, 10 types of thermocouples, 3 types of resistance bulb, DC voltage, DC current are available.

USB Download Data Directly

Saved data transferred by USB flash drive directly, plug and play, easy to operation

PC Support Software

Data Analysis Software supplied in a CD-ROM as part of accessory. DCS configurable software as option.

Screensaver

Recorder turns off the backlight of LCD and exit parameter setting screen when non-operation.

Communication

Photoelectrical isolated RS485 serial communication is available. Standard MODBUS-RUT protocol with reading and writing functions.

Printing

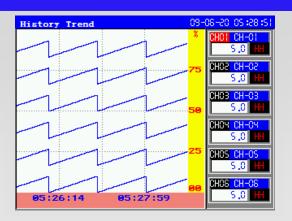
Curve or digital data can be printed by connecting mini printer directly or through software

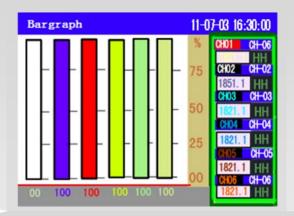
PC Support Software

Display data in digit and trend format, Export data as Excel format for further analysis, Print trend data by office printer.

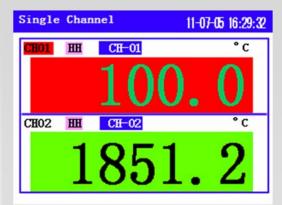
Various Screen Display Modes

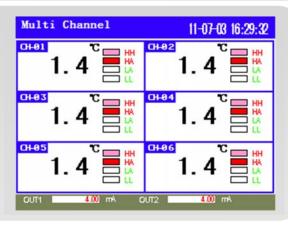


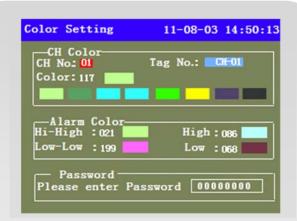


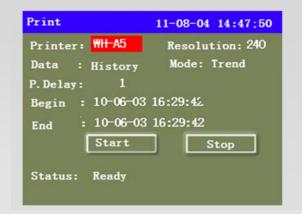










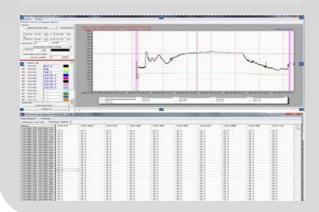


Sizels, high performance and integrated ARM Single and multi channels display		Specif	ications	
Power Consumption Maximum SVA(SW) Circle Consumption Owner Consumption Insulation Power to ground > 1500VAC Display Contents • Real time Trend Display Keyboard P/E, Left, Right, UP, Down Free Left, Right, UP, Down Free Crieshment cycles of 1 to 3600see Materials ABS for case and bezel Scale display CPU 32bits, high performance and integrated ARM Digital display Mount Method Panel Flush Mounted > Bargraph Display Size/Mount Size/Mass 96x 96x85mm, 92x92mm, 0.5g Bargraph Display Operation Temperature: 2-0x60□ History Trend Display Temperature: 2-0x60□ Relative humidity: 10%-85% (now dew) • Printing Setting Display Input Signal Temperature: 2-0x60□ Recording Specification Input Signal Thermocouple: 7 types Memory Media USB memory (2GB), FAT16 formation for the printing Setting Display Input Signal Thermocouple: 7 types Memory Gapacity 8MB built in for long time record Input Signal Thermocouple: 7 types Memory Gapacity 8MB built in for long time record Input Signal Thermocouple: 7 t	General Specification		Life of Backlight	50.000hours
Power Consumption Maximum SVA(5W) Power to ground > 1500VAC Power to ground > 1500VAC Power to ground > 1500VAC Power to housing > 1500VAC Power	Power Supply	100-240VAC, 47-63Hz; 24VDC		,
Power to ground > 1500VAC Power to housing ≥ 1500VAC Power to hous	Power Consumption	Maximum 5VA(5W)		
Power to housing > 1500VAC Keyboard P/E, Left, Right, UP, Down ABS for case and bezel Terminal M5 screw terminal Scale display Scale display Single and multi channels display History Circular Chart Display Single and multi channels display History Circular Chart Display Printing Setting Display Printing Setti	Insulation	Power to ground > 1500VAC		
Keyboard P/E, Left, Right, UP, Down Refreshment cycles of 1 to 3600 see Materials ABS for case and bezel Seale display CPU 32bits, high performance and integrated ARM • Digital display Mount Method Panel Flush Mounted • Bargraph Display Size/Mount Size/Mass 96x 96x85mm, 92x92mm, 0.5kg Bargraph Display Operation Relative humidity; 10%-85% (now dew) Printing Setting Display Transport/Storage Temperature: -20-601 Relative humidity; 5%-95% (nodew) Recording Specification Printing Setting Display Number of inputs 1, 2, 3, 4.5.6 points Memory Plash memory (2GB), FAT16 format Memory Input Signal Thermocouple: 7 types Memory Flash memory (K.S.B.E.J.N.T.R.Wer523,Wer520) Record Interval 1 to 3600 seconds, settable flexibly R1Dut Signal Thermocouple: 7 types Memory Record Interval 1 to 3600 seconds, settable flexibly R1Dut Signal Thermocouple: 7 types Memory Record Interval 1 to 3600 seconds, settable flexibly R1Dut Signal Thermocouple: 7 types Memory Record Interval 1 to 3600 seconds, sett		Power to housing > 1500VAC	F ,	• •
Materials ABS for case and bezel Keal display Terminal M5 screw terminal - Real time Circular Chart Display CPU 32bits, high performance and integrated ARM - Digital display Mount Method Panel Flush Mounted - Bargraph Display Size/Mount Size/Mass 68, 96x,85mm, 92x92mm, 0.5kg - History Trend Display Operation Working Temperature: -20-60□ Recording Specification - Printing Setting Display Transport /Storage Relative humidity: 19%-95% (now dew) Recording Specification - Printing Setting Display Input Specification Memory Media USB memory (2GB), FAT16 format Memory Number of inputs 1, 2, 3, 4,5,6 points Memory Flash memory Input Signal Thermocouple: 7 types Memory Flash memory KED-Resistance bulbs: 3 types (PC100, CU50,CU100) Record Time 45days per 1 srecord interval per Cottoner (4-20mA, 0-10 mA) Others: 4 types (0-20mV,0-60mV) Record Time 45days per 1 min. record interval per Cottoner (4-20mA, 0-10 mA) Recording Method Star recording when power on. Staling 2-0000 to 20000 Data Save Cycle Oldest dat	Keyboard	P/E, Left, Right, UP, Down		· ·
Solution Solution	Materials	ABS for case and bezel		
Mount Method Panel Flush Mounted Size/Mount Size/Mass 96 96 885mm, 92×92mm, 0.5kg Working Temperature.0.50C Relative humidity; 10%-85% (now dew) Printing Setting Display	Terminal	M5 screw terminal		Real time Circular Chart Display
Mount Method	CPU			Digital display
Mount Method Panel Flush Mounted ■ Bargraph Display Size/Mount Size/Mass 96x 96x85mm, 92x92mm, 0.5kg ■ History Trend Display Operation Working Temperature 0.50C Relative humidity: 10%-85% (now dew) ■ Printing Setting Display Transport /Storage Temperature: -20-60 □ Relative humidity: 5%-95% (nodew) Recording Specification System Configuration Number of inputs 1, 2, 3, 4,56 points Memory Media USB memory (2GB), FAT16 format Memory Input Signal Thermocouple: 7 types Memory Again Memory Flash memory Manal Mark (K.S.B.E.J.N,T.R.Wer523,Wer524) Record Interval 1 to 3600 seconds, estable flexibly RTD-Resistance bulbs: 3 types Record Interval 1 to 3600 seconds, estable flexibly RTD-Resistance bulbs: 3 types Record Interval 1 to 3600 seconds, estable flexibly RTD-Resistance bulbs: 3 types Record Interval 1 to 3600 seconds, estable flexibly RTD-Resistance bulbs: 3 types Record Interval 1 to 3600 seconds, estable flexibly RTD-Resistance bulbs: 3 types Record Interval 1 to 3600 seconds, estable flexibly Auxiliary More Devices Proceeding Memory Record Interval <t< td=""><td></td><td></td><th></th><td>Single and multi channels display</td></t<>				Single and multi channels display
Size/Mount Size/Mass 96x 96x85mm, 92x92mm, 0.5kg • History Trend Display Operation Working Temperature: 0-50C Relative humidity; 10%-85%(now dew) • Printing Setting Display Transport /Storage Temperature: -20-60□ Relative humidity; 5%-95%(nodew) Recording Specification Number of inputs 1, 2, 3, 45,6 points Memory Flash memory Input Signal Thermocouple: 7 types Memory Capacity 8MB built in for long time record RTD-Resistance bulbs: 3 types Record Interval 45days ÷ Channel no * Record interval per Or 7years per 1 min. record interval per Or 7years per 1 min	Mount Method			Bargraph Display
Operation Temperature Working Temperature 20-50 C Relative humidity; 10%-85% (now dew) • History Circular Chart Display Printing Setting Display • Printing Setting Display • System Configuration Transport /Storage Temperature: -20-60 □ Relative humidity: 5%-95% (nodew) Recording Specification System Configuration Number of inputs 1, 2, 3, 45,6 points Memory Flash memory Input Signal Thermocouple: 7 types Memory Flash memory KS, B, E, J, N, T, R, Wer523, Wer520, RTD-Resistance bulbs: 3 types (P100, CU50, CU100) Record Interval 1 to 3600 seconds, settable flexibly RCO Current: (4-20mA, 0-10 mA) Others: 4 types (0-20mV, 0-60mV, 0-100mV, 0-50mV) Record Imerval 45days per 1s record interval per Comparisor of the Configuration of the Configuratio				History Trend Display
Temperature Relative humidity; 10%-85% (now dew) • Printing Setting Display • System Configuration Transport /Storage Temperature: -20-60 □ Relative humidity: 5%-95% (nodew) Recording Specification Input Specification Memory Media USB memory (2GB), FAT16 format Number of inputs 1, 2, 3, 4,5,6 points Memory Flash memory Input Signal Thermocouple: 7 types Memory Capacity 8MB built in for long time record (K.S.B.E.J.N.T.R.Wer523,Wer526) Record Interval 1 to 3600 seconds, settable flexibly RECORD Time 45days ÷ Channel no * Record interval per Control (Pt100, CU50, CU100) Record Time 45days ÷ Channel no * Record interval per Control (Pt100, CU50, CU100) College: (0-5VDC, 1-5VDC) DC Current: (4-20mA, 0-10 mA) Recording Method Start recording when power on. Stample Rate 1s/6 channels. Pata Save Cycle Oldest data replaced by newest data accordingly when memory is full. Scaling 2-2000 to 20000 Data Format Binary format or cannot read or writ. CMR Ratio 50PPM Relay Alarm up to 2 points, 250VAC, 3A, NO or 1 Print Res232 print port William Provice Usb		Working Temperature:0-50C		History Circular Chart Display
Transport /Storage Temperature: -20-60 $\ Relative humidity: 5\%-95\%(nodew)$ Recording Specification Input Specification Memory Media USB memory (2GB), FAT16 format Number of inputs 1, 2, 3, 4, 5,6 points Memory Flash memory Input Signal Thermocouple: 7 types Memory Capacity 8MB built in for long time record (K,S,B,E,J,N,T,R,Wer523,Wer526) Record Interval 1 to 3600 seconds, settable flexibly RECORD Interval 1 to 3600 seconds, settable flexibly Record Time 45days ÷ Channel no * Record interval per Company of the per Co	•			Printing Setting Display
Input Specification				System Configuration
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Thermocouple: 7 types (K,S,B,E,J,N,T,R,Wer523,Wer526) (R,S,B,E,J,N,T,R,Wer523,Wer526) (R,S,B,E,J,N,T,R,Wer523,Wer526) (R) (R,S,B,E,J,N,T,R,Wer523,Wer526) (R) (R,S,B,E,J,N,T,R,Wer523,Wer526) (R) (R) (R) (R) (R) (R) (R) (R) (R) (R	Input Specification		Memory Media	USB memory (2GB), FAT16 format
(K,S,B,E,J,N,T,R,Wer523,Wer526) RTD-Resistance bulbs: 3 types (Pt100, CU50,CU100) DC Voltage: (0-5VDC, 1-5VDC) DC Current: (4-20mA, 0-10 mA) Others: 4 types (0-20mV,0-60mV, 0-100mV, 0-500mV) O-100mV, 0-500mV) Data Save Cycle Oldest data replaced by newest data accordingly when memory is full Scaling -20000 to 20000 Data Format Binary format or cannot read or write SopPM Relay Alarm up to 2 points, 250VAC,3A, NO or 1 Relay Alarm up to 2 points, 250VAC,3A, NO or 1 Relay Alarm up to 2 point Rescalable flexibly Record Time 45days per 1s record interval per Cording When power on. Stop recording when power on. Stop recording when power on. Stop recording when power off. Oldest data replaced by newest data accordingly when memory is full Optional Output Function Relay Alarm up to 2 points, 250VAC,3A, NO or 1 Relay Alarm up to 2 points, 250VAC,3A, NO or 1 Retransmission 4-20mA, up to 2 point Retransmistion 4-20mA, up to 2 point 4-20	Number of inputs	1, 2, 3, 4,5,6 points	Memory	Flash memory
RTD-Resistance bulbs: 3 types	Input Signal	Thermocouple: 7 types	Memory Capacity	8MB built in for long time record
Procession Pr		(K,S,B,E,J,N,T,R,Wer523,Wer526)	Record Interval	1 to 3600 seconds, settable flexibly
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Cothers: 4 types (0-20mV,0-60mV, 0-100mV, 0-500mV)Step recording when power off.Sample Rate1s/6 channels,Data Save CycleOldest data replaced by newest data accordingly when memory is fullScaling-20000 to 20000Data FormatBinary format or cannot read or write accordingly when memory is fullCMR Ratio85-110dBOptional Output FunctionTemperature Shift50PPMRelay Alarmup to 2 points, 250VAC,3A, NO or 100 according to 1000VAC between channels ground according to 1000VAC between		ů ì í		7years per 1 min. record interval per ch
Step recording when power on:Sample Rate1s/6 channels,Data Save CycleOldest data replaced by newest data accordingly when memory is fullScaling-20000 to 20000Data FormatBinary format or cannot read or writeCMR Ratio85-110dBOptional Output FunctionTemperature Shift50PPMRelay Alarmup to 2 points, 250VAC,3A, NO or 1Photoelectrical1000VAC between channels groundRetransmission4-20mA, up to 2 pointIsolation400VAC between channelsPrintRS232 print portInput Independence0-5VDC and 1-5VDC input: 500KΩUSBUSB flash drive4-20mA input: 250 KΩAuxiliary Power24VDC, 50mA for sensor and0-10mA input: 500KΩSupplytransmittersOther signal input :20MΩAlarm FunctionDisplay SpecificationMax, Min, HoldAlarm FunctionDisplay SpecificationType of AlarmHigh, Low, High-High, Low-Low line of the point of t			Recording Method	Start recording when power on.
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Scaling-20000 to 20000Data FormatBinary format or cannot read or write the f			Data Save Cycle	Oldest data replaced by newest data
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Temperature Shift50PPMRelay Alarmup to 2 points, 250VAC,3A, NO or 1Photoelectrical1000VAC between channels groundRetransmission4-20mA, up to 2 pointIsolation400VAC between channelsPrintRS232 print portInput Independence0-5VDC and 1-5VDC input: 500KΩUSBUSB flash drive4-20mA input: 250 KΩAuxiliary Power24VDC, 50mA for sensor and0-10mA input: 500KΩSupplytransmittersOther signal input: 20MΩRS485 MODBUS-RTU protocolInput Error ActionMax, Min, HoldAlarm FunctionDisplay SpecificationType of AlarmHigh, Low, High-High, Low-Low lightDisplay3.2 inch, 320X240 TFT, color LCDNo. of SettingUp to 4 alarms are settable for each			Data Format	Binary format or cannot read or write
Photoelectrical1000VAC between channels ground 400VAC between channelsRetransmission4-20mA, up to 2 pointInput Independence0-5VDC and 1-5VDC input: 500KΩ 4-20mA input: 250 KΩPrintRS232 print portUSBUSB flash drive4-20mA input: 250 KΩ 0-10mA input: 500KΩ Other signal input :20MΩAuxiliary Power Supply24VDC, 50mA for sensor and transmittersInput Error ActionMax, Min, HoldCommunicationRS485 MODBUS-RTU protocolDisplay SpecificationType of AlarmHigh, Low, High-High, Low-Low lingDisplay3.2 inch, 320X240 TFT, color LCDNo. of SettingUp to 4 alarms are settable for each			Optional Output Func	tion
Isolation400VAC between channelsPrintRS232 print portInput Independence0-5VDC and 1-5VDC input: 500KΩUSBUSB flash drive4-20mA input: 250 KΩAuxiliary Power24VDC, 50mA for sensor and0-10mA input: 500KΩSupplytransmittersOther signal input :20MΩCommunicationRS485 MODBUS-RTU protocolInput Error ActionMax, Min, HoldAlarm FunctionDisplay SpecificationType of AlarmHigh, Low, High-High, Low-Low lingDisplay3.2 inch, 320X240 TFT, color LCDNo. of SettingUp to 4 alarms are settable for each			Relay Alarm	up to 2 points, 250VAC,3A, NO or NC
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4-20mA input: 250 KΩ 0-10mA input: 500KΩ Other signal input :20MΩ Input Error Action Max, Min, Hold Display Specification Display 3.2 inch, 320X240 TFT, color LCD display Auxiliary Power Supply Communication RS485 MODBUS-RTU protocol Alarm Function Type of Alarm High, Low, High-High, Low-Low limits are settable for each			Print	RS232 print port
Auxiliary Power 24 VDC, 30 MA to sensor and 0-10mA input: $500KΩ$ Supply transmitters Other signal input: $20MΩ$ Communication RS485 MODBUS-RTU protocol Input Error Action Max, Min, Hold Alarm Function Display Specification Type of Alarm High, Low, High-High, Low-Low ling Display 3.2 inch, 320X240 TFT, color LCD No. of Setting Up to 4 alarms are settable for each	Input Independence	·	USB	USB flash drive
Supply draws minuters Other signal input :20MΩ Communication RS485 MODBUS-RTU protocol Input Error Action Max, Min, Hold Alarm Function Display Specification Type of Alarm High, Low, High-High, Low-Low li Display 3.2 inch, 320X240 TFT, color LCD No. of Setting Up to 4 alarms are settable for each		·	Auxiliary Power	24VDC, 50mA for sensor and
Input Error Action Max, Min, Hold Alarm Function Display Specification Display 3.2 inch, 320X240 TFT, color LCD No. of Setting Up to 4 alarms are settable for each		·	Supply	transmitters
Display Specification Type of Alarm High, Low, High-High, Low-Low lie 3.2 inch, 320X240 TFT, color LCD No. of Setting Up to 4 alarms are settable for each			Communication	RS485 MODBUS-RTU protocol
Display 3.2 inch, 320X240 TFT, color LCD No. of Setting Up to 4 alarms are settable for each		Max, Min, Hold	Alarm Function	
No. of Setting Up to 4 alarms are settable for each			Type of Alarm	High, Low, High-High, Low-Low limit
display channel, configurable flexibly	Display		No. of Setting	Up to 4 alarms are settable for each
		display		channel, configurable flexibly

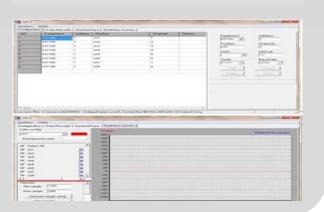
Specification				
Alarm Indication Alarm output	Alarm States is displayed in digital, trend, bargraph, circular chart. When alarm occurs, state flashing Up to 2 points, 3A contact	Clock	Clock accuracy: +-5ppm. After power off, Li battery for continual power supply. The validity of battery is 30days.	
Alarm Setting	Individual or common output	PC Support Software (Standard-supplied CD-ROM)	
Communication Function		O/S		
Communication	Photoelectrical isolated RS485 communication port, read and write	Required Hard Disk Capacity	Window 2000/XP, WISTA Free capacity of 30MB or larger required	
Protocol	Modbus RTU, can communicate with modern PLC and HMI directly	Required Memory Contents	1GB or larger The follows types are included as	
Cable	RS485 shielded twisted pair cable		standard:	
Print Function			1) Data Analysis Software	
Print Port	RS232C comm. Port, Baudrate: 9600		It allows you to view the past	
Printer	Dot-matrix mini printer; Ribbon Resolution: 60,120,240dots/line		recorded data in digit and curve format from data saved in	
Data Printed Type	History data, Real time data, history curve data, optional		recorder to USB flash drive It allows you to export the data	
Reference Performance			as Excel format for further	
Accuracy	 0.2 grade when RTD, linear voltage, linear current and T.C input 0.2%FS±2.0°C when T.C input with cold junction compensation by internal part of recorder 		 analysis It allows you to print the curve data by office printer DCS configuration Software 	
Indication Resolution	0.1℃		• It allows you to view real time	
Input Resistance	RTD: Current 2.5mA, three wire, max.10ohm per each wire. Thermocouple: not more than 1000Ω .		 data in digit, curve format It can save the past data with same function with data analysis 	
C.J Compensation	Tolerance: maximum +-2°C		software.	

PC Support Software

History data transferred to USB flash drive can be viewed to personal computer



History and real time data by RS485 can be viewed to personal computer.



PC Support Software

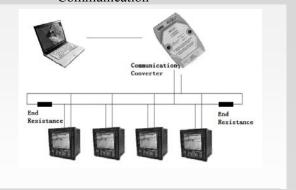
USB Download Data, Plug and Play



Please install the software in CD and USB flash drive to PC before usage.

- O/S: Window 2000/XP, WISTA
- Required hard disk capacity :Free capacity of 30MB or larger required
- Recommend USB flash driver: Kingston
- FAT16 format.

Communication

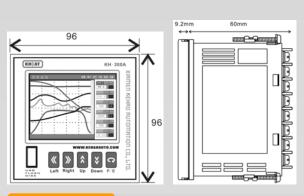


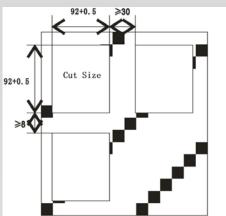
Please install the software in CD before usage.

- O/S: Window 2000/XP, WISTA
- Required hard disk capacity :Free capacity of 30MB or larger required
- Recommend cable: RS485 shielded twisted pair cable
- Repeater is needed when more than 100m communication distance.

Size & Installation (Unit: mm)

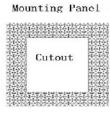




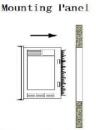


Installation

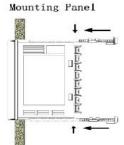




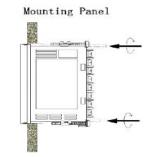




2. Mounting Meter



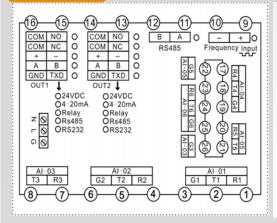
3. Mounting Bracket

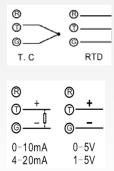


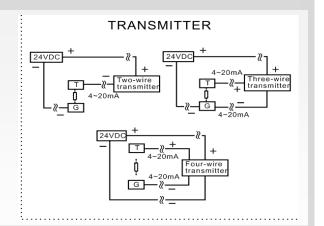
4. Fix Bracket

Diagram & Connection (Unit: mm)

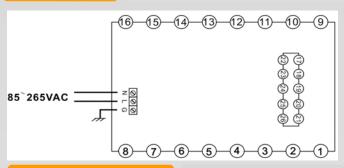
Diagram

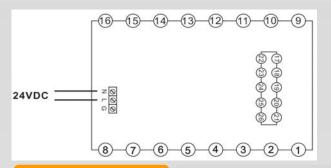




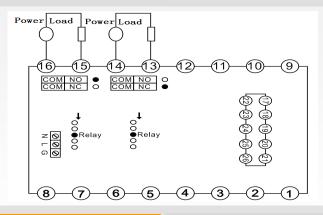


Power Diagram

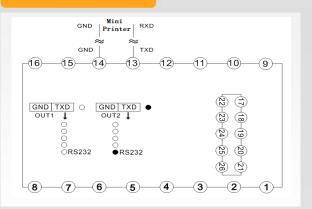




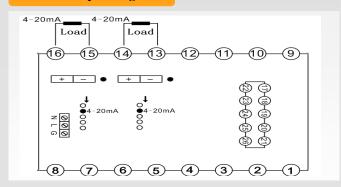
Alarm Output Diagram



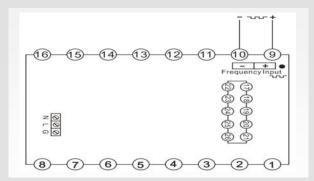
Mini Printer Diagram



4-20mA Output Diagram



Frequency Input Diagram



Order Code **Function Code and Description** IJ-**Basic Code** KH3 KH300AG Color Paperless Recorder 01 One Channel 02 Two Channels Channel No. 06 Six Channels 96*96*85mm(L*W) Size A G LCD color Color -N None -R2A Relay alarm: NO ,30VDC/3A, 220VAC/3A -R2B Relay alarm: NC ,30VDC/3A, 220VAC/3A OUT1 Isolated auxiliary 24VDC power supply for -U3 transmitter, sensor and other device, max.40mA Isolated4-20mA retransmission output, only for -I1 max.250ohm load -N None Relay alarm: NO ,30VDC/3A, 220VAC/3A -R2A -R2B Relay alarm: NC ,30VDC/3A, 220VAC/3A Isolated auxiliary 24VDC power supply for **OUT2** -U3 transmitter, sensor and other device, max.40mA RS232 printing port for mini printer, WH-A5 mini -P printer as default. Isolated 4-20mA retransmission output, only for -I1 max.250ohm load Communication -S1 RS485 communication port, Modbus-RTU **USB** -U USB flash drive for download data

Note:

- 1) Code "P" is RS232 printing port, used for WH-E20 mini printing to print data. If mini printer is needed, please advise.
- 2) Code "S1" "S2" is serial communication port, based on standard MODBUS-RTU protocol, which can be configurable with SCADA, OPC server etc flexibly. Meanwhile, we have PC DCS software for it. If DCS software required, please advice.

-N

-O

-N

-D

None

85-240VAC

24VDC

One channel, 0-5KHZ frequency input

3) Code "I1" is retransmission output, but only max. one channel output in OUT1 or OUT2 in a recorder.

Frequency Input

Power Supply

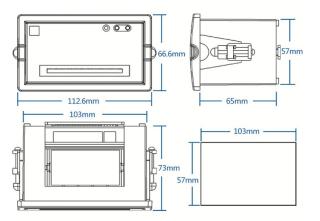
Eg.: Order Code: KH306AG-R2A-U3-S1-U-NN, functions as follows: KH300AG Color paperless recorder, 6 channels, a relay alarm output, a 24VDC auxiliary power supply, a RS485 communication port, USB data transferring function., 110-240VAC power supply.

Optional-Mini Printer

Mini Printer-WH-E20







Printing Method	Dot Matrix, Ribbon Type
Paper Width	44mm/57mm
Print Width	32mm/48mm
Resolution	96dots/line, 144dots/line,240dots/line
Character per line	16/24/40
Printing Speed	1line/sec, 0.7 line/sec, 0.4line/sec.
Character Size	6x8dots, 8x16dots,6x 12dots
Paper Type	Plain, 44mm/57mm wide, 30mmΦ

Power Supply	5VDC,1.5A		
Outline Size:	122.6x66.6x73mm		
Cut Size	103mm(W)x57mm(H)x65mm(D)		
Interface	Serial RS232port		
Operate Temperature	0-5C		
Storage Temperature	-20 to 60C		
Operating Humidity	10%-85%		
Storage Humidity	10%-90%		

