

# KH300G Color paperless recorder

**SRC**



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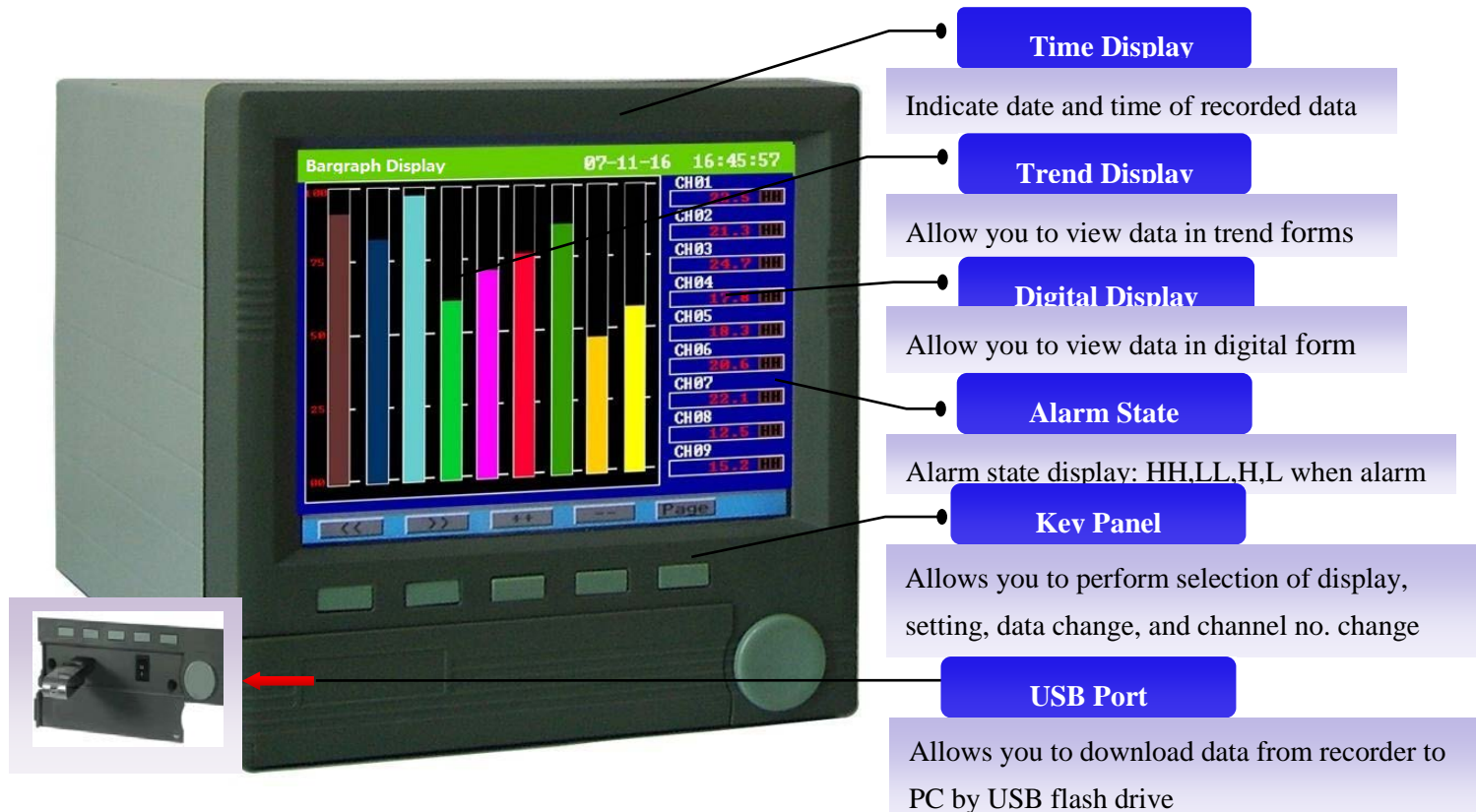
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# Memory Flash Drive Data Saving

**Provides flexibility and variety in the handing of record data**



## Long Time Memory

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

## Universal Input, 16 Points Max. Recording

Photoelectrical isolated universal input, 10 types of thermocouples, 3 types of resistance bulb, DC voltage, DC current, mV, 0-5KHz frequency input are

## USB Download Data Directly

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

## Math, Flow Totalizer Option

Math: addition: +, subtraction: -; multiplication: \*; division: /; average; Max.; Min.

## 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-RTU protocol with reading and writing functions.

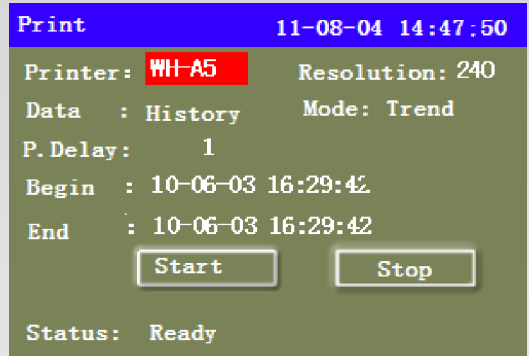
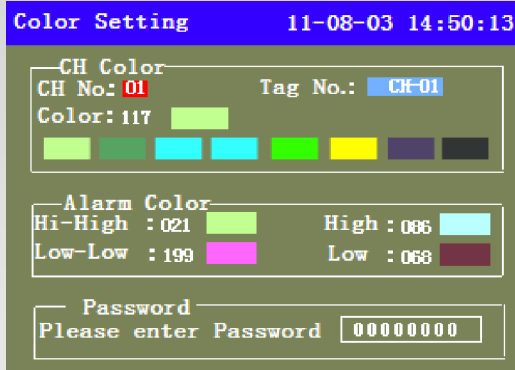
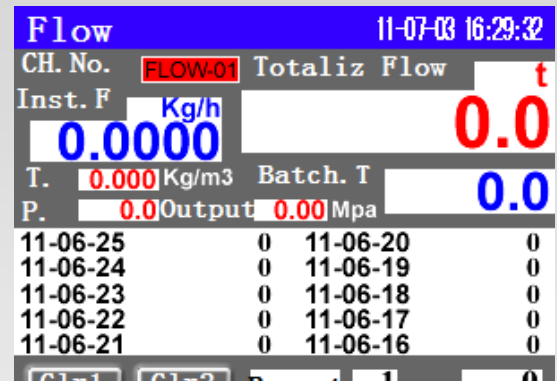
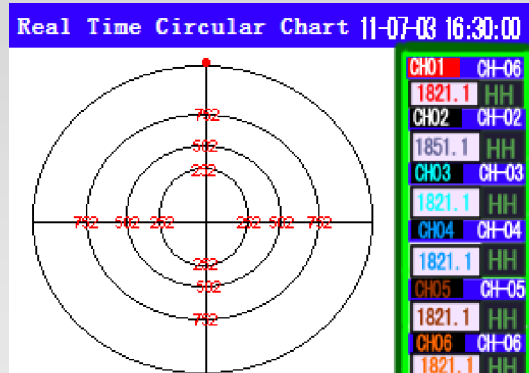
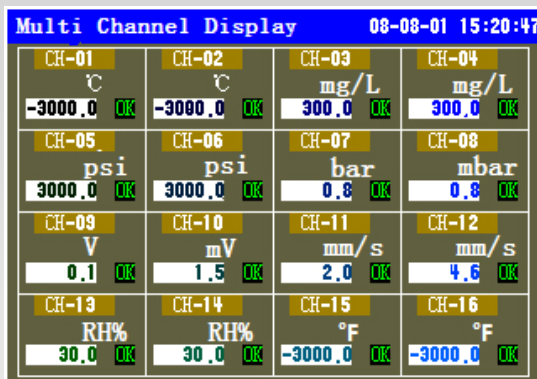
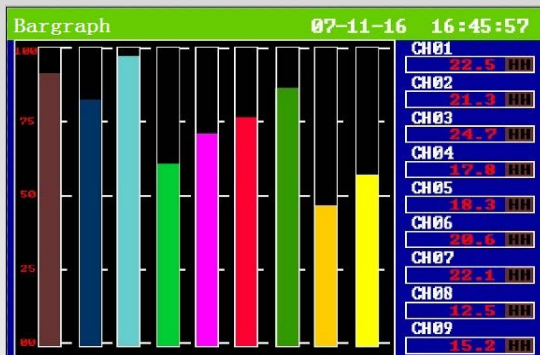
## Printing

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

# Various Screen Display Modes



# Specifications

General Sncification		Life of Backlight	50,000hours
Power Supply	100-240VAC, 47-63Hz; 24VDC	Screensaver Time	0-30000s, settable
Power Consumption	Maximum 5VA(5W)	Unit	77 , settable and addable each channel
Insulation	Power to ground > 1500VAC Power to housing > 1500VAC	Display Contents	<ul style="list-style-type: none"><li>Real time Trend Display</li></ul> In horizontal, selected in the refreshment cycles of 1 to 3600sec Scale display
Keyboard	P/E, Left, Right, UP, Down		<ul style="list-style-type: none"><li>Real time Circular Chart Display</li></ul>
Materials	ABS for case and bezel		<ul style="list-style-type: none"><li>Digital display</li></ul> Single and multi channels display
Terminal	M5 screw terminal		<ul style="list-style-type: none"><li>Bargraph Display</li></ul>
CPU	32bits, high performance and integrated ARM		<ul style="list-style-type: none"><li>History Trend Display</li></ul>
Mount Method	Panel Flush Mounted		<ul style="list-style-type: none"><li>History Circular Chart Display</li></ul>
Size/Mount Size/Mass	144x144x180,138x138mm/2.75kg		<ul style="list-style-type: none"><li>Printing Setting Display</li></ul>
Operation Temperature	Working Temperature:0-50C Relative humidity; 10%-85%( now dew)		<ul style="list-style-type: none"><li>System Configuration</li></ul>
Transport /Storage	Temperature: -20-60°C Relative humidity : 5%-95%(nodew)		Recording Specification
Input Specification		Memory Media	USB memory , FAT16 format
Number of inputs	1, 2, 3, 4,5,6....16 points	Memory	Flash memory
Input Signal	Thermocouple: 7 types (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) Frequency: 0-5KHZ, one Channel	Memory Capacity	8MB built in for long time record
		Record Interval	1 to 3600 seconds, settable flexibly
		Record Time	Record time =45days÷Channel No.s x record interval time
		Recording Method	Start recording when power on. Stop recording when power off.
		Data Save Cycle	Oldest data replaced by newest data accordingly when memory is full
		Data Format	Binary format or cannot read or write
		Optional Output Function	
Sample Rate	1s/8 channels, 125ms/channels	Relay Alarm	up to 16 points, 220VAC,3A, NO+NC
Scaling	-20000 to 20000	Retransmission	4-20mA, up to 6 point build-in; up to 16 points build-out
CMR Ratio	85-110dB	Print	RS232 print port
Temperature Shift	50PPM	USB	USB flash drive
Photoelectrical Isolation	1000VAC between channels ground 400VAC between channels	Auxiliary Power Supply	12VDC, 24VDC,24VDC, 50mA for sensor and transmitters
Input Independence	0-5VDC and 1-5VDC input: 500KΩ 4-20mA input: 250 KΩ 0-10mA input: 500KΩ Other signal input :20MΩ	Communication	RS485 MODBUS-RTU protocol
Innput Error Action	Max. Min. Hold	Flow Totalize	Flow totalize and batch totalize
Display Specification		Alarm Function	
Display	5.6 inch, 320X240 TFT, Color LCD display	Type of Alarm	High, Low, High-High, Low-Low limit
		No. of Setting	Up to 4 alarms are settable for each channel, configurable flexibly



## Specification

<b>Alarm Indication</b>	Alarm States is displayed in digital, trend, bargraph, circular chart. When alarm occurs, state flashing
<b>Alarm output</b>	Up to 16 points, 3A contact
<b>Alarm Setting</b>	Individual or common output
<b>Communication Function</b>	
<b>Communication</b>	Photoelectrical isolated RS485 communication port, read and write data and parameter
<b>Protocol</b>	Modbus RTU, can communicate with modern PLC and HMI directly
<b>Cable</b>	RS485 shielded twisted pair cable
<b>Print Function</b>	
<b>Print Port</b>	RS232C comm. Port, Baudrate: 9600
<b>Printer</b>	Dot-matrix mini printer; Ribbon Resolution: 60,120,240dots/line
<b>Data Printed Type</b>	History data, Real time data , history curve data, optional
<b>Reference Performance</b>	
<b>Accuracy</b>	<ul style="list-style-type: none"> <li>0.2 grade when RTD, linear voltage, linear current and T.C input</li> <li>0.2%FS±2.0℃ when T.C input with cold junction compensation by internal part of recorder</li> </ul>
<b>Indication Resolution</b>	0.1℃
<b>Input Resistance</b>	RTD: Current 2.5mA, three wire, max.10ohm per each wire. Thermocouple: not more than 1000Ω.

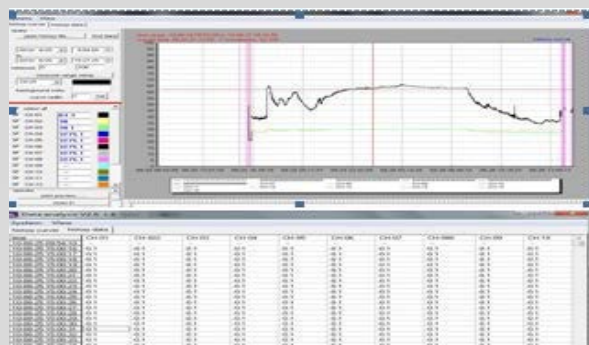
<b>Clock</b>	Clock accuracy: +5ppm. After power off, Li battery for continual power supply. The validity of battery is 30days.
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### PC Support Software (Standard-supplied CD-ROM)

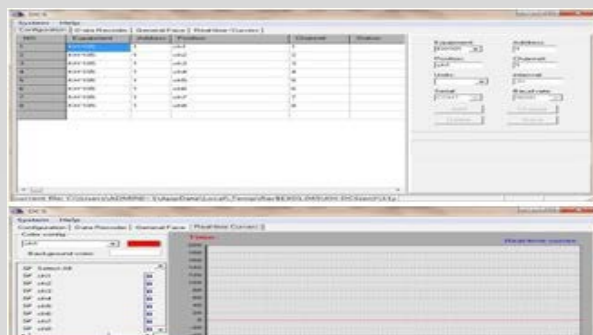
<b>O/S</b>	Window 2000/XP, WISTA
<b>Required Hard Disk Capacity</b>	Free capacity of 30MB or larger required
<b>Required Memory</b>	1GB or larger
<b>Contents</b>	<p>The follows types are included as standard:</p> <ol style="list-style-type: none"> <li>1) Data Analysis Software <ul style="list-style-type: none"> <li>It allows you to view the past recorded data in digit and curve format from data saved in recorder to USB flash drive</li> <li>It allows you to export the data as Excel format for further analysis</li> <li>It allows you to print the curve data by office printer</li> </ul> </li> <li>2) DCS configuration Software <ul style="list-style-type: none"> <li>It allows you to view real time data in digit, curve format</li> <li>It can save the past data with same function with data analysis software.</li> </ul> </li> </ol>

## 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

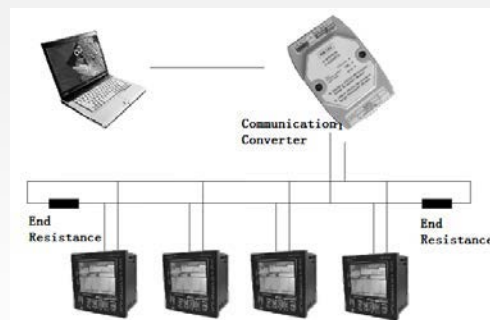
## USB Download Data, Plug and Play



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

## Communication

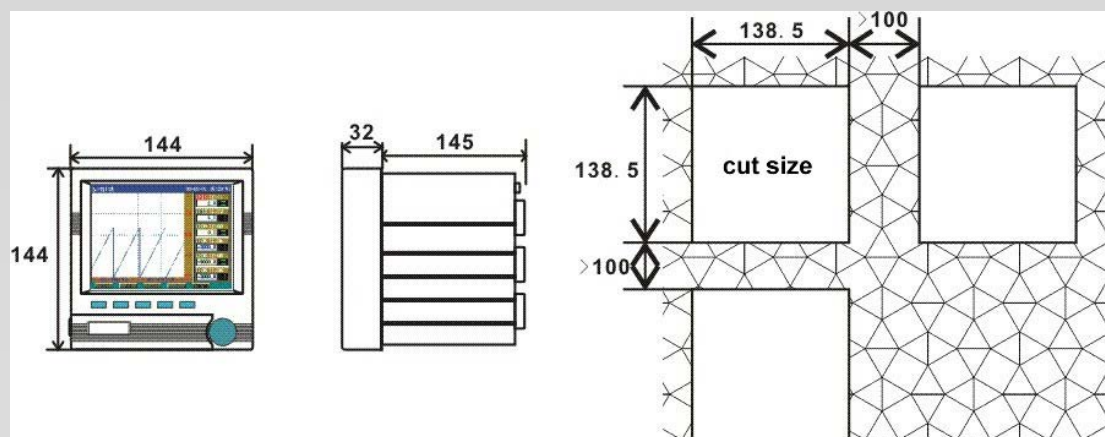


Please install the software in CD before usage.

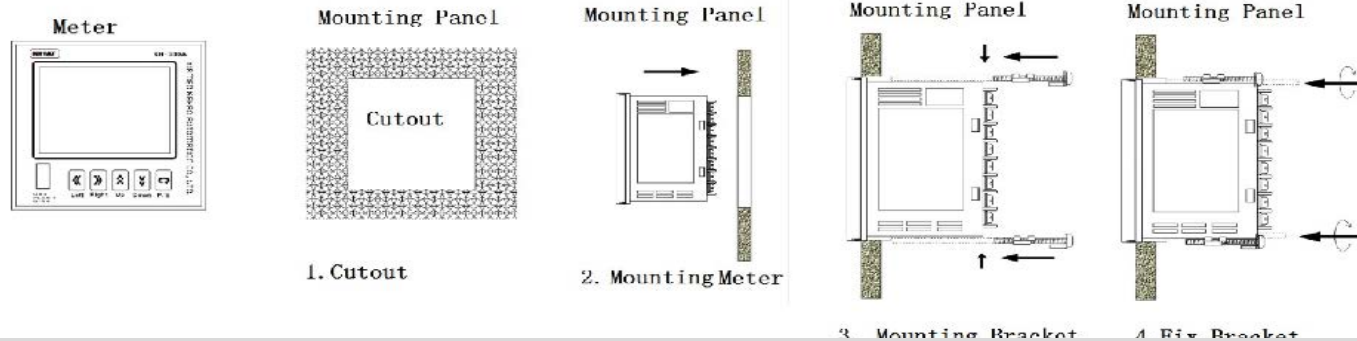
- O/S: Window 2000/XP, WISTA
- Required hard disk capacity :Free capacity of 30MB or larger required
- Recommend cable: RS485 shielded twisted

# Size & Installation (Unit: mm)

## Dimension



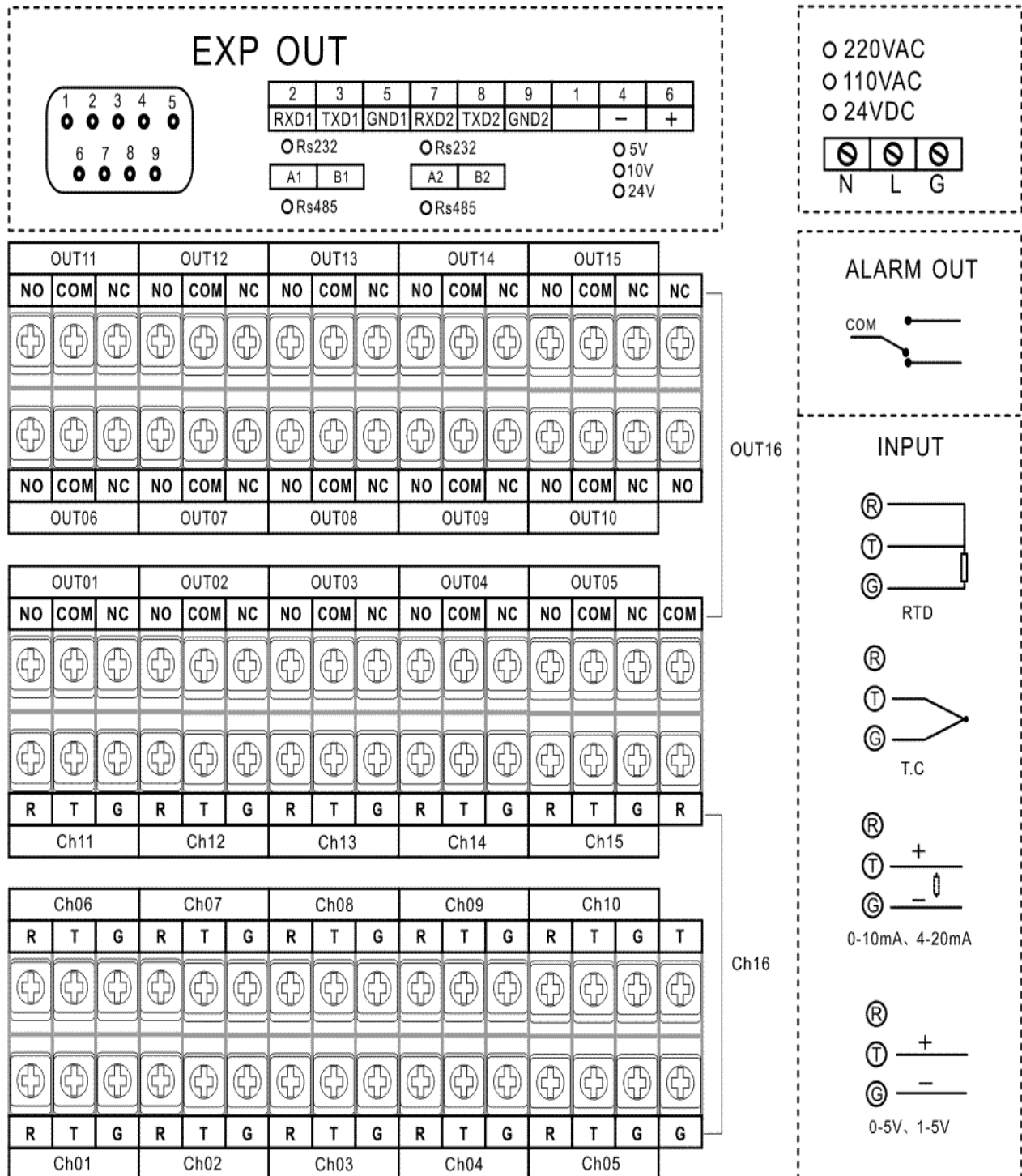
## Installation



# Diagram & Connection

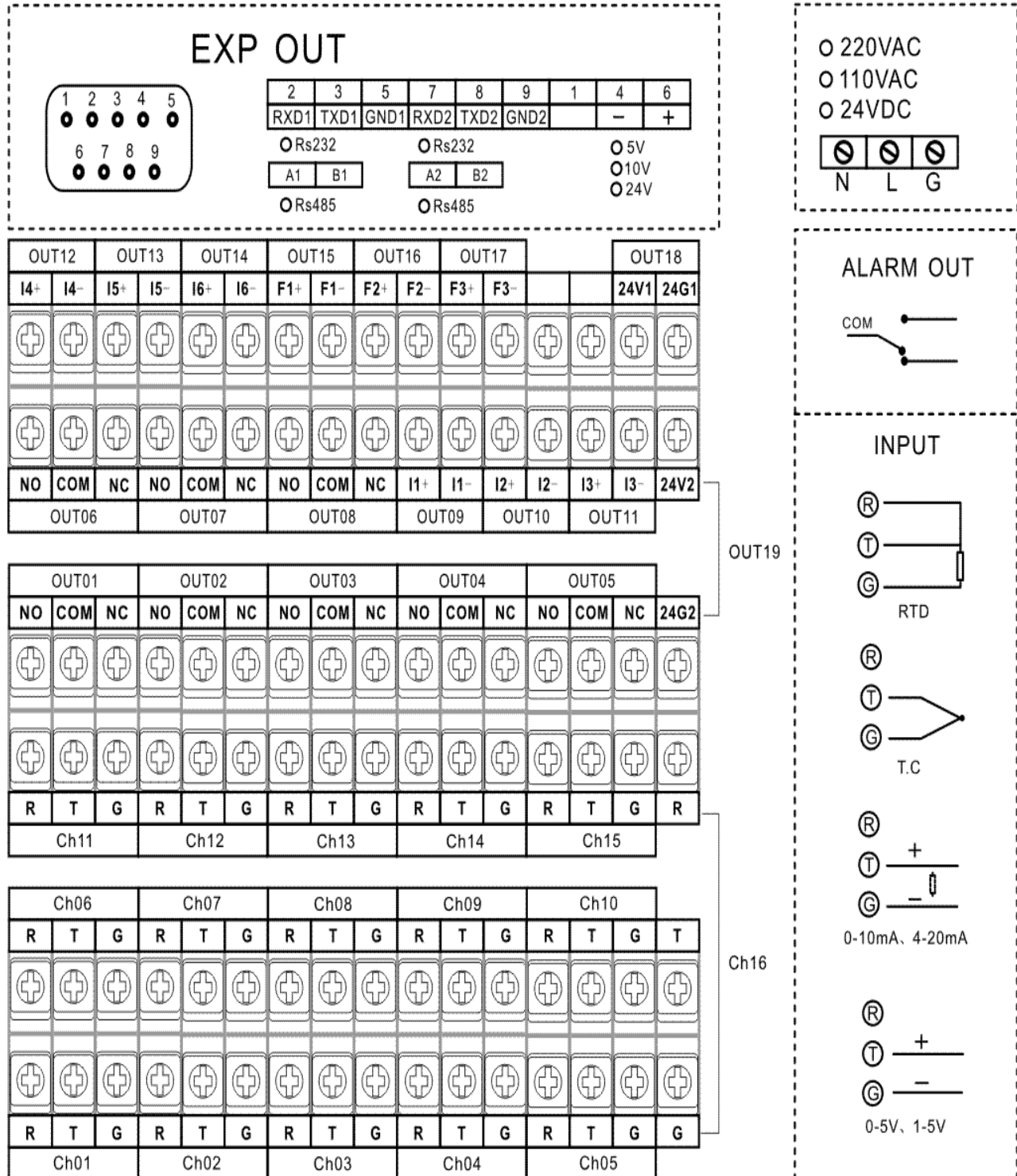
## Diagram

a. When the relay alarm output is more than 8 outputs (Maximum 16 relay alarms output). At this state, retransmission output can be expanded externally if needed. Diagram as follows:



## Diagram & Connection

b. When the relay alarm output is not more than 8 outputs. At this state, maximum 8 relay alarms output, maximum 6 retransmission built-in output, 1 channels frequency input. Also 2 channels 24VDC outputs can be optional. Diagram as follows:





# Order

Function	Code and Description										
KH3											KH300G color Paperless Recorder
Channel No.	01										One Channel
	02										Two Channels
	...										.....
	16										Sixteen Channels
LCD Color	G-										Color
Relay Alarm Output		N-									None
		R2C-									1 alarm: NO+NC ,30VDC/3A, 220VAC/3A
		2R2C-									2 alarm: NO+NC ,30VDC/3A, 220VAC/3A
		.....									.....
		16R2C-									16 alarm: NO+NC ,30VDC/3A, 220VAC/3A
Retransmission Output (Maximum 6 outputs built-in will be optional only when the alarm output no is equal and less than 8 channels.)		N-									None
		I1-									One channel isolated programmable linear retransmission output: 4-20mA
		2I1-									Two channels isolated programmable linear retransmission output: 4-20mA
		.....									.....
		6I1-									Sixteen channels isolated programmable linear retransmission output: 4-20mA
Auxiliary power supply for a sensor or transmitter (If more than one sensor or transmitter, external DC-AC auxiliary power supply can be offered, please advise us if need)		N-									None
		U1-									Isolated auxiliary 5vdc power supply for transmitter, sensor and other device, max.200mA
		U2-									Isolated auxiliary 12vdc power supply for transmitter, sensor and other device, max.80mA
		U3-									Isolated auxiliary 24vdc power supply for transmitter, sensor and other device, max.40mA
Communication		N-									None
		S1-									RS485 communication. port, standard MODBUS-RTU protocol
		S2-									RS232communication port, standard MODBUS-RTU protocol
Printing		N-									USB flash drive for download data
		P-									RS232 printing port for mini printer, WH-E20 mini printer as default.
USB		U-									USB flash drive to download data to PC, free PC data analysis software offered

<b>Flow totalizer with Temperature and Pressure compensation; Math</b>	N-		None
	F-		Flow totalizer accumulation with compensation; or Basic math: +, -, x, /, min, max, average
<b>Frequency Input (just can be optional when the relay alarm outputs is equal or less than 8 outputs)</b>	N-		None
	Q-		One channel 0-5KHz frequency input
<b>Power Supply</b>		N	100-240VAC
		D	24VDC

**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.

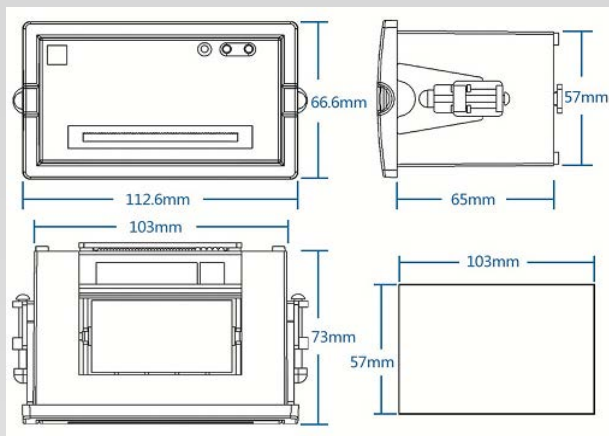
Eg.: Order Code: KH316B-8R2C-6I1-U3-S1-U-F-Q-N, functions as follows: KH300B monochrome paperless recorder, 16 channels, 8 relay alarm output, 6 channels 4-20mA retransmission output, a 24VDC auxiliary power supply, a RS485 communication port, USB data transferring function., Flow totalizer with compensation, math function, a channel frequency input ,110-240VAC power supply.

## Optional-Mini Printer

### Printer



### Size



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

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