

■ Safety Considerations

Warning Failure to follow these instructions may result in serious injury or death.

Caution Failure to follow these instructions may result in personal injury or product damage.

Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
Failure to follow this instruction may result in personal injury, economic loss or fire.
2. **Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire or electric shock.
3. **Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.
4. **Do not touch the product during operation or for a certain period of time after stopping.**
Failure to follow this instruction may result in burn or fire.
5. **Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
Failure to follow this instruction may result in explosion or fire.
6. **Install on the device panel or DIN rail, and ground to the F.G. terminal separately.**
When connecting the F.G. terminal, use AWG16 (1.25mm²) or over.
Failure to follow this instruction may result in fire or electric shock.
7. **Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire or electric shock.
8. **Since Lithium battery is embedded in the product, do not disassemble or burn the unit.**
Failure to follow this instruction may result in fire.

Caution

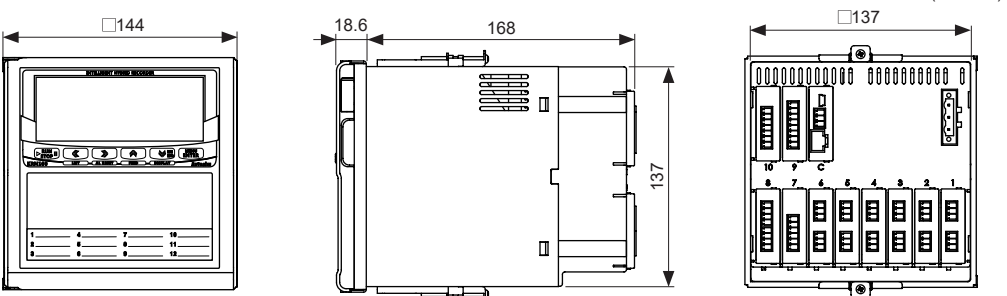
- 1. Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
- 2. Use a dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire or electric shock.
- 3. Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
Failure to follow this instruction may result in fire or product damage.
- 4. When connecting the power input or measurement input, use AWG20 (0.50mm²) cable or over and tighten the terminal screw with a tightening torque of 0.74 to 0.9N·m.**
Failure to follow this instruction may result in fire or malfunction due to contact failure.
- 5. Do not use the load beyond rated switching capacity contact.**
Failure to follow this instruction may result in fire, relay broken, contact melt, insulation failure or contact failure.
- 6. Do not disassemble or assemble input/output card, when power is supplied.**
Failure to follow this instruction may result in product damage.
- 7. Use the transmitter output terminals only as the power for the transmitter.**
Failure to follow this instruction may result in product damage.
- 8. When connecting the temperature sensor (TC, RTD) or analogue input (voltage, current) as input to the universal input card, set the jumper pin to the correct place for the connected input method.**
If the jumper pin is placed improperly, it may result in product damage or malfunction.

■ Specifications

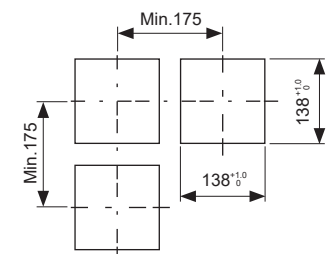
Series		KRN100
Power voltage		100-240VAC~ 50/60Hz
Allowable voltage range		85 to 110% of rated voltage
Power consumption		Max. 55VA
Screen	LCD type	STN Graphic LCD
	Resolution	320×120 Pixel
	Adjusting brightness	4-level (OFF/Min/Standard/Max)
	Backlight	White LED, 2-level (Temp/Always)
Input channels		2 / 4 / 6 / 8 / 10 / 12-channel (2-channel/card)
Universal input		Temperature sensor (RTD, thermocouple), analog (voltage, current)
Sampling cycle		1 to 4-channel: 25ms/125ms/250ms, 5 to 12-channel: 125ms/250ms (inner sampling cycle is operation unit time for average movement filter and alarm output function.) ※Min. sampling cycle for TC-R, U, S, T sensor is 50ms.
Recording speed in graph mode		10, 20, 40, 60, 120, 240mm/H
Recording speed accuracy		F.S. ±0.5%
Storage cycle		1 to 3600 seconds (storage interval time to inner log file is 1 seconds)
Inner memory		512MB
USB memory※1		Recognizes max. 32GB, enables to use cable up to 1.5m
Dielectric voltage		2500VAC 50/60Hz for 1 minute (power terminal and case) ※Excepts USB Device and Ethernet
Vibration strength (for convey and storage) and operating vibration		Vibration strength: 10 to 60Hz 4.9m/s ² (each X, Y, Z axis for 1 hour) Operating vibration: 10 to 60Hz 1m/s ² (each X, Y, Z axis for 10 minutes)
Insulated resistance		Over 20MΩ (at 500VDC megger)
Noise immunity		±2kV the square wave noise (pulse width 1μs) by the noise simulator
Time accuracy		Within ±2 min/year (enables to use up to 2100 year)
Mech- anism	Ink cartridge	Enables to normal print with going and returning printing max. 5 times within 7 days after opening the unit
	Ink dry time	Max. 15 minutes
Protection		IP40 (front panel, IEC Standard)
Recording paper		113mm×9m
Environ- ment	Ambient temperature	0 to 50°C, storage : -20 to 60°C (without ink cartridge)
	Ambient humidity	35 to 85% RH, storage : 35 to 85% RH
Approval		CE 
Weight※2		Approx. 2.4 to 2.7kg (approx. 1.7 to 2.0kg)

※Environment resistance is rated at no freezing or condensation.

■ Dimensions



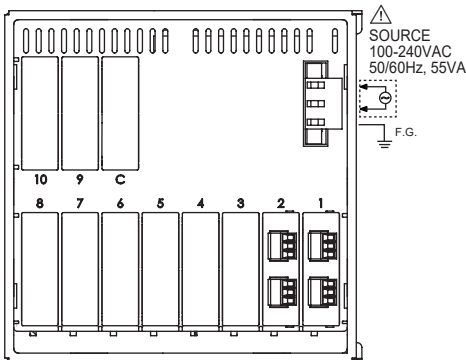
- Panel cut-out



* The above specifications are subject to change and some models may be discontinued without notice.
* Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, website).

■ Connections

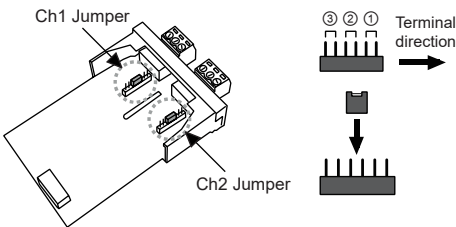
This figure is the rear side of KRN100-04000-00-0S.



Slot	Description
1 to 6	Connects universal input card(KRN-UI2).
7 to 10	Connects digital input card(KRN-DI6), alarm output card(KRN-AR4, KRN-AT6), transmitter power output card(KRN-24V3).
C	Connects communication output card(KRN-COM).

■ Input Type Setting

Before setting the parameters, set the jumper pin channel 1/2 of universal input card (KRN-UI2) depending on input specification as below figure.

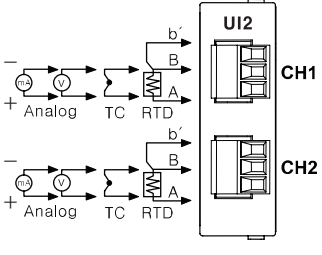
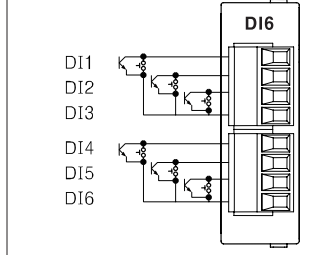
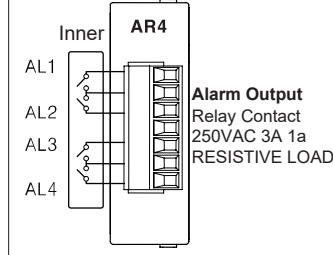
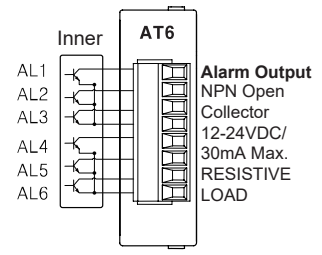
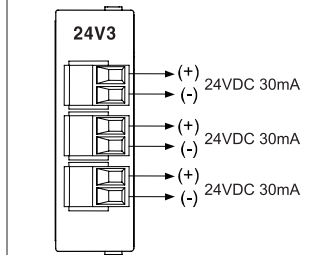
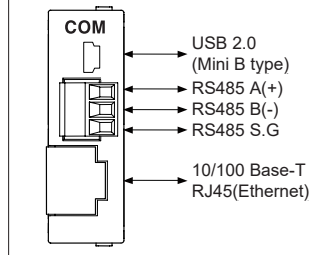


Jumper pin	Input specification	Input break alarm
①	0 to 20mA, 4 to 20mA	Enables only 4 to 20mA
②	TC, RTD, $\pm 60\text{mV}$, $\pm 200\text{mV}$	Enables
③	$\pm 2\text{V}$, 1 to 5V, $\pm 5\text{V}$, -1 to 10V	Disables

■ User Manual

For the detail information and instructions, please refer to user manual and user manual for communication.
Download manuals from the enclosed CD-ROM or our web site (www.autonics.com).

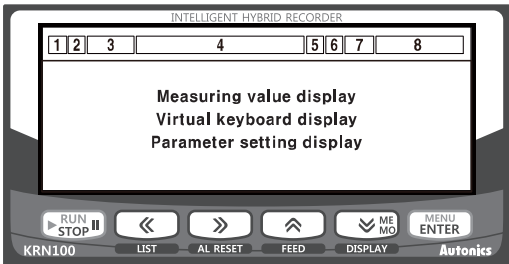
I/O Card

Universal input card [KRN-UI2]  ※Each channel is isolated and dielectric strength is 500V.	Digital input card [KRN-DI6] 	Alarm output card [KRN-AR4(relay output)]  Alarm Output Relay Contact 250VAC 3A 1a RESISTIVE LOAD
Alarm output card [KRN-AT6(transistor output)]  Alarm Output NPN Open Collector 12-24VDC/ 30mA Max. RESISTIVE LOAD ※AL1,2,3 and AL4,5,6 are isolated.	Transmitter power output card [KRN-24V3]  ※Each 24V output is isolated individually.	Communication output card [KRN-COM]  USB 2.0 (Mini B type) RS485 A(+) RS485 B(-) RS485 S.G. 10/100 Base-T RJ45(Ethernet)

■ Screen Layout and Status Display

Screen layout is divided as two; upper screen for status display, lower screen for measuring value display, virtual keyboard display, parameter setting display.

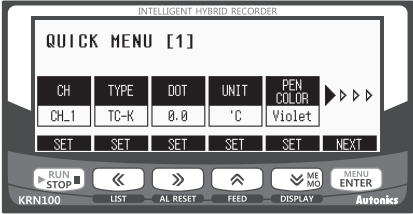
Upper screen displays recorder status and information of recorder as icon.



Section	Icon	Name	Description
1		Record start icon	Marks if for starting recording measuring value of recordable channels.
		Record stop icon	Stops recording measuring value.
		List record icon	Flashes during list recording.
		Reservation record icon	Flashes during reservation recording.
		FEED icon	Flashes during feeding recording paper.
		Backup data print icon	Flashes during backup data printing.
2		Digital mode icon	Marks it for digital record mode.
		Graph mode icon	Marks it for graph record mode.
		Record memory status icon	Marks it storage capacity of record memory in digital mode or graph mode.
		No recording paper icon	Marks it for no recording paper. Please replace new recording paper.
3		USB communication icon	Marks  icon during Modbus RTU communication using USB.
		Ethernet communication icon	Marks  icon during Modbus TCP communication using Ethernet.
		RS485 communication icon	Marks  icon during Modbus RTU communication using RS485.
4		Alarm ON icon	Marks  channel icon which alarm occurs.
5		Digital input(DI) icon	Marks the below icon according to input function setting during digital input (DI).
		Digital input(DI)-memo icon	Marks it when digital memo of digital input or front  is input in recording status.
		Digital input(DI)-alarm reset icon	Marks it when alarm reset signal of digital input (DI) is input.
		Digital input(DI)-start record icon	Marks it when start record signal of digital input (DI) is input.
		Digital input(DI)-stop record icon	Marks it when stop record signal of digital input (DI) is input.
		Digital input(DI)-LIST output icon	Marks it when LIST output signal of digital input (DI) is input.
		Digital input(DI)-record speed icon	Marks it when changing record speed signal of digital input (DI) is input.
6		Unlock icon	Marks it for unlock status.
		User(general user) lock icon	Marks it for user (general user) lock status.
		Administrator lock icon	Marks it for administrator and general user lock status.
7		Inner and external (USB) memory capacity icon	Displays data capacity of internal memory as bar graph.
8		Date/Time display	Displays current date and time. In summer time season, (S) mark is also displayed at front of year.

■ QUICK MENU

QUICK MENU consists of usually used parameters for quickly parameter setting.

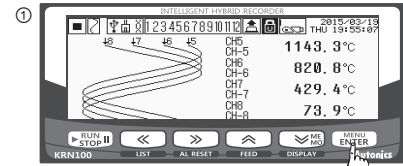


1) Parameters of QUICK MENU

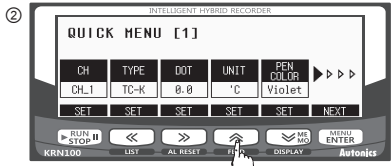
Page	Parameter	Description	Linked parameters
QUICK MENU [1]	CH	Select channel for the QUICK MENU[1] setting.	
	TYPE	Input type	[INPUT SETUP]-[Input Type]
	DOT	Decimal point	[INPUT SETUP]-[Range/Scale Point]
	UNIT	Display/Temperature unit	[INPUT SETUP]-[Display/Temp Unit]
	PEN COLOR	Pen color	[INPUT SETUP]-[Pen Color]
QUICK MENU [2]	CH	Select channel for the QUICK MENU[2] setting.	
	LOW RANGE	Low-limit input value or graph scale value	[INPUT SETUP]-[Low Range] or [INPUT SETUP]-[Low Graph Scale]
	HIGH RANGE	High-limit input value or graph scale value	[INPUT SETUP]-[High Range] or [INPUT SETUP]-[High Graph Scale]
	LOW SCALE	Low-limit scale value	[INPUT SETUP]-[Low Scale]
	HIGH SCALE	High-limit scale value	[INPUT SETUP]-[High Scale]
QUICK MENU [3]	PRINT MODE	Record mode	[RECORD SETUP]-[Record Mode]
	PRINT SPEED	Standard record speed	[RECORD SETUP]-[Standard Speed]
	PRINT MEMO	Digital memo period	[RECORD SETUP]-[Memo Period]
	BACK LIGHT	LCD backlight	[SYSTEM SETUP]-[Backlight]
	LCD ON/OFF	LCD backlight On/Off	[SYSTEM SETUP]-[Backlight On/Off]
QUICK MENU [4]	USB REC	Memory save	[FILE/MEMORY SETUP]-[USB LogData Save]
	USB COPY	Call USB COPY window	[FILE/MEMORY SETUP]-[USB Memory Copy/Move]
	UPGRADE	Call upgrade window	[USER/INFORMATION SETUP]-[Firmware Upgrade]
	CANCEL	Cancel the settings	
	SAVE	Save the setting of QUICK MENU[1] to [4].	

※Refer to "KRN100 user manual".

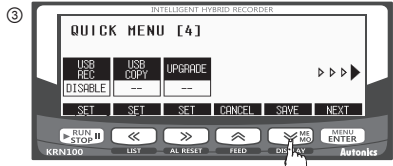
2) QUICK MENU Setting



Press the **MENU ENTER** key once in RUN mode and it enters to QUICK MENU.
QUICK MENU consists of usually used parameters for quickly parameter setting.

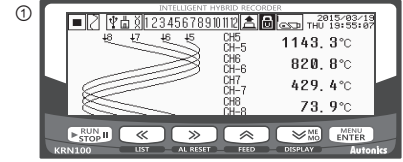


Set the keys following the each parameter. Press the **NEXT** (**MENU ENTER**) key and it moves to next page.
E.g.) When changing the temperature unit (°C→°F) of CH1, press the **SET** (**FEED**) key.

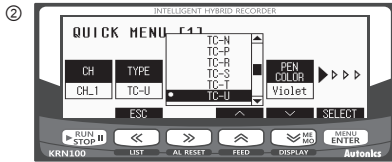


After completing the setting, press the **SAVE** (**MENU ENTER**) key at QUICK MENU[4] and save the settings. It returns to RUN mode.

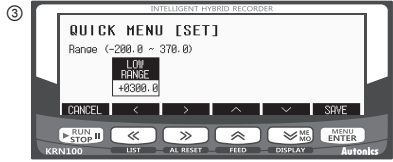
• E.g.) In case of CH1, recording as input type=TC-U, low-limit input value=300, standrad record speed= 240mm/h



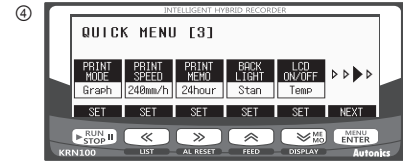
Press the **SET** (**FEED**) key in RUN mode to enter QUICK MENU.



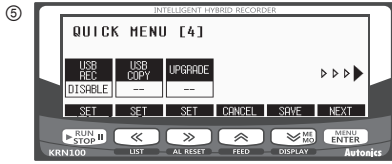
Press the **SET** (**FEED**) key at QUICK MENU [1] and below screen is displayed. Set input type [TYPE] as TC-U by pressing **SET** (**FEED**) **MENU ENTER** keys and press the **MENU ENTER** key.



Press the **NEXT** (**MENU ENTER**) key once and it moves to QUICK MENU [2]. Press the **SET** (**FEED**) key using **SET** (**FEED**) **MENU ENTER** keys to set low-limit input range [LOW RANGE] as 300 and press the **MENU ENTER** key.

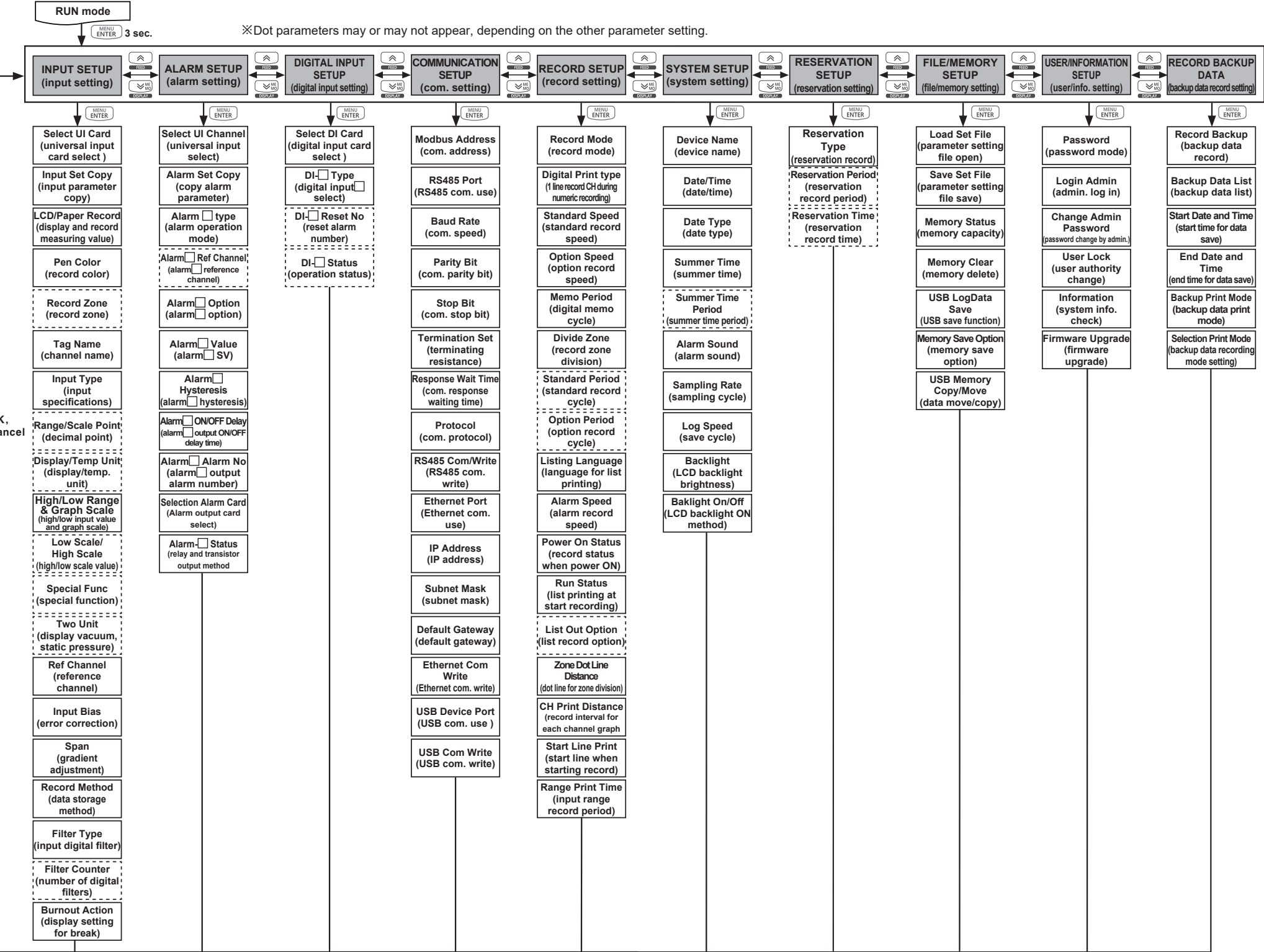


Press the **NEXT** (**MENU ENTER**) key once and it moves to QUICK MENU [3]. Press the **SET** (**FEED**) key and set standard record speed [PRINT SPEED] as 240mm/h.



Press the **NEXT** (**MENU ENTER**) key once and it moves to QUICK MENU [4]. Press the **SAVE** (**MENU ENTER**) key to save the settings of QUICK MENU [1] to [4] and it returns to RUN mode.

■ Parameters



■ Operation

