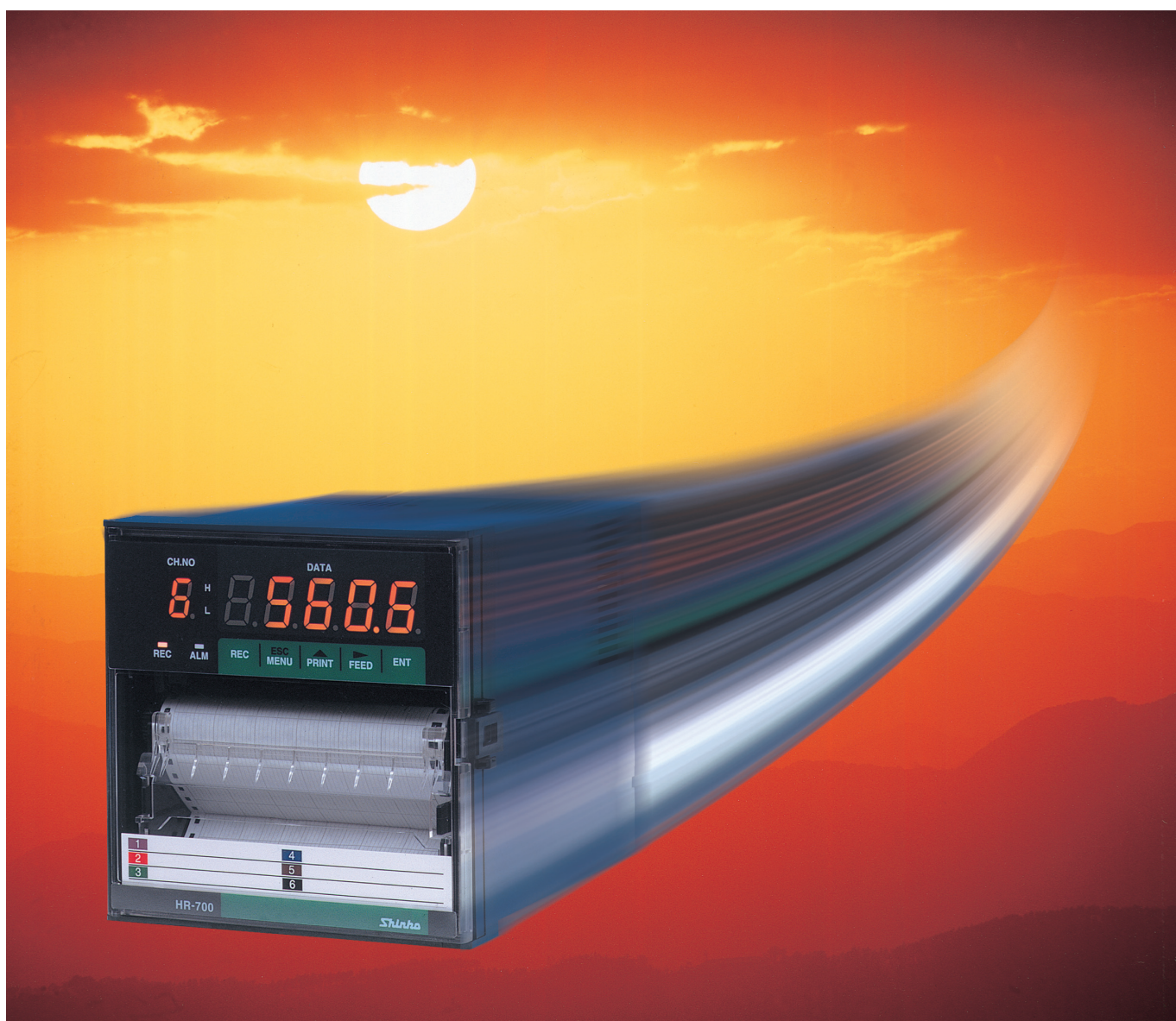


Hybrid Recorder



HR-700 Series



Hybrid Recorder

*A smaller, lighter recorder
with RS-232C provided as standard.*

Shinko

Compact: 150mm in depth, 1.5kg in weight

Available for small panel mounting

Communication interface is provided

Corresponds to FA (factory automation) system by communication interface, RS-232C (standard) or RS-485 (option)

Larger LED display

LED size: 18mm in height

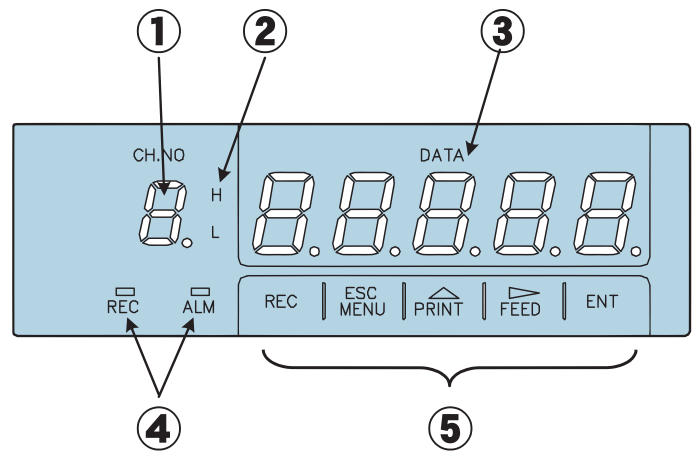
Dust-proof · Drip-proof (IEC529 IP65)

Stands up to even harsh environments such as food related plants and kilns

Conformity standard

UL, CSA and CE marking

■ Display and operation keys



①: Channel number indicator

Orange LED indicates Channel number 1 to 6.

②: Alarm indicator

Red LED indicates the type of the alarm.
[H] is lit when the alarm is High, and [L] is lit when the alarm is Low. Neither of them is lit when there is no alarm.

③: Data indicator

Indicates the process variable, time, setting value and setting item by orange indicator.

④: Status indicators

The [REC] (orange) is lit when recording. The [ALM] (red) is lit when the alarm is being activated.

⑤: Operation keys

Use these keys for setting and other operations.

■ Model name

HR-70□, □□□		HR-700 (W144×H144×D150mm)	
Input point	1	1-point (Pen writing type only)	Multi-range system (Input types are selectable.)
	2	2-point (Pen writing type only)	
	6	6-point (Dot printing type only)	
Option	C5	Communication function (RS-485)	
	RE1	DI function (Pen writing type)	
	RE6	DI function (Dot printing type)	
	FL	Paper-empty detection function	
	LH3	Alarm output function (Pen writing type)	
	LH6	Alarm output function (Dot printing type)	

• When ordering, select the alphanumeric characters from the table above for □.
When adding options, enter the code using “comma”.

■ Rated scale and accuracy

Input	Range	Measuring (Digital display)		Recording (analog)
		Measuring accuracy	Resolution	Recording accuracy
Thermocouple	K1	−200.0 to 1370.0°C	0.1°C	Measuring accuracy: ±(0.3% of recording span)
	K2	−200.0 to 600.0 °C		
	K3	−200.0 to 300.0 °C		
	E1	−200.0 to 800.0 °C		
	E3	−200.0 to 150.0 °C		
	J1	−200.0 to 1100.0°C		
	J2	−200.0 to 400.0 °C		
	J3	−200.0 to 200.0 °C		
	R1	0.0 to 1760.0°C		
	R2	0.0 to 1200.0°C		
	S	0.0 to 1760.0°C		
	B	0.0 to 1820.0°C		
	N	0.0 to 1300.0°C		
	E2	−200.0 to 300.0 °C		
RTD	C	0.0 to 2320.0°C	0.1K	Measuring accuracy: ±(0.3% of recording span)
	PR40-20	0 to 1880°C		
	Au-Fe	0 to 300 K		
	PL-II	−100 to 1390 °C		
	U	−200.0 to 400.0°C		
	L	−200.0 to 900.0°C		
	T1	−200.0 to 400.0 °C		
	T2	−200.0 to 200.0 °C		
	Pt100 1	−200.0 to 650.0°C		
	Pt100 2	−200.0 to 200.0°C		
DC voltage	JPt100 1	−200.0 to 630.0°C	0.1°C	Measuring accuracy: ±(0.3% of recording span)
	JPt100 2	−200.0 to 200.0°C		
	−10 to 10mV	±(0.2% of rdg+3 digits)		
	0 to 20mV	±(0.2% of rdg+3 digits)		
	0 to 50mV	±(0.2% of rdg+2 digits)		
	−200 to 200mV	±(0.2% of rdg+3 digits)		
	−1 to 1V	±(0.1% of rdg+3 digits)		
	−10 to 10V	±(0.3% of rdg+3 digits)		
	0 to 5V	±(0.2% of rdg+2 digits)	1mV	

• In the case of DC current input, shunt resistor (sold separately) is needed.

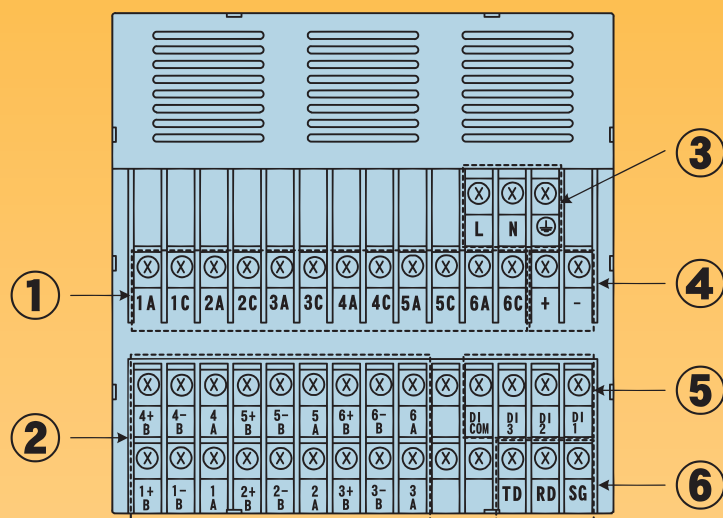
Standard specifications

Measuring point	When ordering, one type can be selected from the following. 1-point (Pen writing type): HR-701, 2-point (Pen writing type): HR-702, 6-point (Dot printing type): HR-706
Input	Multi-range (Types are selectable.) - Thermocouple ----- K, J, R, S, B, E, T, C (W / Re5-26), N, PL-II, PR40-20, Au-Fe, U, L - RTD ----- Pt100, JPt100 - DC voltage ----- $\pm 10\text{mVdc}$, 0 to 20mVdc, 0 to 50mVdc, $\pm 200\text{mVdc}$, $\pm 1\text{Vdc}$, $\pm 10\text{Vdc}$, 0 to 5Vdc - DC current ----- 4 to 20mA (Needs external 250Ω of shunt resistor which is sold separately.) Scale ----- Refer to the rated scale. Input resistance ----- When Thermocouple, DC voltage (mV) range without burnout alarm :10M Ω or greater. When Thermocouple, DC voltage (mV) range with burnout alarm :200k Ω or greater. When DC voltage (V) :1M Ω or greater When DC current (mA) :250 Ω (External shunt resistor) Allowable signal source resistance ----- When Thermocouple, DC voltage (mV) range without burnout alarm :10k Ω or less. When Thermocouple, DC voltage (mV) range with burnout alarm :100 Ω or less. When DC voltage (V) :1k Ω or less When RTD :10 Ω or less per wire
Display	System ----- Digital indication, 7-segment orange, LED 6 digits (Channel number indicator: 1 digit, Measured value indicator: 5 digits) Contents ----- Channel No., Process variable, Date and year, Chart feed speed, Alarm setting value Others ----- REC: Lights while recording ALM: Red LED lights when alarm action occurs to whichever channel.
Performance	Digital accuracy rating ----- $\pm 0.2\%$ ± 1 digit or less (Within the measuring range of mV and V input. TC and RTD are excluded.) Recording accuracy ----- Measuring accuracy $\pm (0.3\%$ of recording span) Dead band ----- Within 0.2% Normal mode rejection rate ----- 60dB or greater (50/60 ± 0.1 Hz) Common mode rejection rate ----- 140dB or greater (50/60 ± 0.1 Hz) Interchannel maximum noise voltage ----- 200Vac 50/60Hz Vibration resistance ----- 10 to 60Hz 1m/s ² or less Shock resistance ----- 2m / s ² or less Clock accuracy ----- ± 50 ppm or less
Recording	Chart paper ----- Width: 100mm, Length: 16m, Weight: 83g a volume Recording method ----- Pen writing type: Disposable felt pen (1-pen: Red, 2-pen: Green) Dot printing type: Wire dot (6-color ink ribbon) (No.1: Purple, No.2: Red, No.3: Green, No.4: Blue, No.5: Brown, No.6: Black) Printing method ----- Pen writing type: Wire dot (1-color ink ribbon) Dot printing type: Wire dot (6-color ink ribbon) Step response time ----- Pen writing type: 1 second or less (IEC1143, 95% response) Recording period ----- Pen writing type: Continuous recording for each channel Dot printing type: 10 seconds (Selectable from 10s, 20s, 30s, 60s) Chart speed ----- Pen writing type: Selectable from 46 types of speed by front key within the range of 0 to 12000mm/h Dot printing type: Selectable from 34 types of speed by front key within the range of 0 to 1500mm/h Chart feed accuracy ----- Within $\pm 0.1\%$ (Does not include expansion or shrink of paper, when it is fed 1000mm or greater.)
Alarm	Alarm output is not available. (ALM is lit.) When alarm output is needed, alarm output function (Option) is required. Setting points ----- Maximum 4 points (2 points for High limit and low limit each) can be set per channel. Hysteresis width ----- 0.5% Setting accuracy ----- The same as Digital display accuracy
Communication	RS-232C : 1200 / 2400 / 4800 / 9600bps
Supply voltage	100 to 240Vac, 50/60Hz, Allowable voltage fluctuation ----- 85 to 264Vac
Power consumption	1-pen: Approx. 25VA, 2-pen: Approx. 28VA, 6-pen: Approx. 25VA
Insulation resistance	Between each terminal and ground: 20M Ω or greater at 500Vdc
Dielectric strength	1.5kVac for 1min between power terminal and ground terminal 500Vac for 1min between input terminal and ground terminal 200Vac for 1min between input terminal and the other input terminal
Ambient surroundings	temperature: 0 to 50°C, humidity: 20 to 80% RH
Material	Case: Flame resisting resin (Black), Door: Flame resisting resin (Transparent)
Door	Dust-proof and Drip-proof (IEC529 IP65)
Mounting method	Panel mounting (Vertical panel), Allowable inclination angle: Backward 0 to 30° or less
Weight	HR-701: Approx. 2kg, HR-702: Approx. 2.5kg, HR-706: Approx. 1.5kg
Added function	Skipping, Servo-stop, Self-diagnosis, Zone recording, Partial compression/expansion recording, Decade recording and indication, Tag number setting, Copy function, Input offset setting, Operation, Operation between channels, Scaling, Burnout, Memory back up (Clock function is protected by the internal lithium battery. [Battery life: Approx. 10 years]) Setting/Corrected data is protected by non-volatile memory., Asynchronous print mode, Printer gap correction function
Accessories	Chart paper: 1 volume, Ribbon cassette (Dot printing type:1, Pen writing type:1), Cartridge pen (1-pen type: 1, 2-pen type : 2), Packing: 1, Mounting bracket: 1 set, Instruction manual: 1 copy

Optional specifications

Communication function [C5]	Communicating line: RS-485, Data transfer rate: 1200 / 2400 / 4800 / 9600
DI function [RE1] [RE6]	Settable up to 3 points (Maximum) Chart feed Start / Stop : Relay contact ON : Start, Relay OFF : Stop Changing chart speed : Changes 1st with contact ON and 2nd with contact OFF Comment print : Prints comments with contact ON (Up to 16 characters a line) Log print : Prints with contact ON Date and time print : Prints date and time with contact ON
Empty paper tray detection function [FL]	Detects when the paper tray is empty, stops recording, and performs the alarm output. (When adding this option, [LH3] or [LH6] needs to be added.)
Alarm output function [LH3] [LH6]	Output number - Pen writing type, 3 points (Built-in option, a contact) - Dot printing type, 6 points (Built-in option, a contact) Contact capacity ----- 250Vac Maximum 3A (Resistive load) 30Vdc Maximum 3A (Resistive load) 125Vdc Maximum 0.5A (Resistive load)

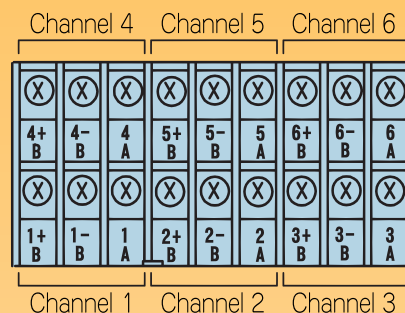
Terminal arrangement



①: Alarm output terminal (Option)

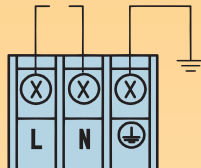


②: Input terminal

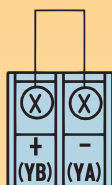


③: Power supply terminal

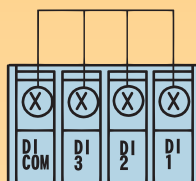
100 to 240Vac (50/60Hz)



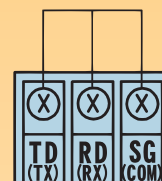
④: RS-485 Communication terminal (Option)



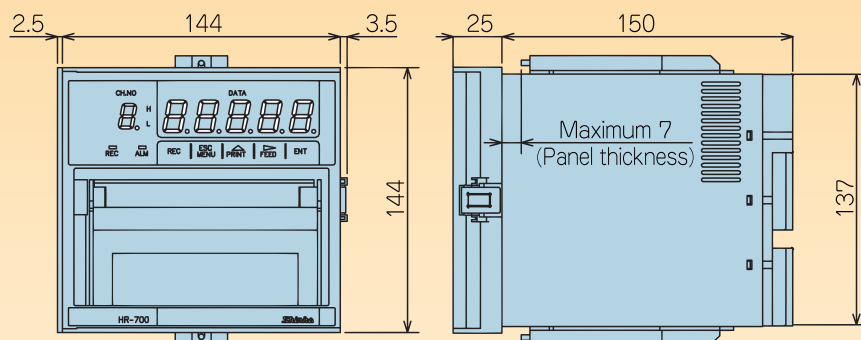
⑤: DI Function terminal (Option)



⑥: RS-232C Communication terminal

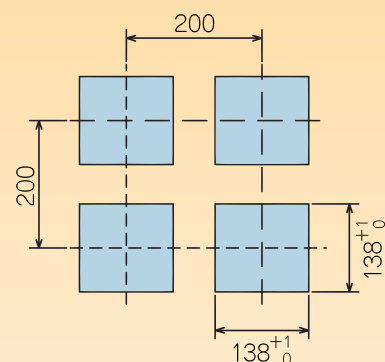


External dimension



Allowable inclination angle : Backward 0 to 30° or less

Panel cutout



- This catalog is as of December 2003, and specifications are subject to change without notice.
- When inquiring, please consult our agency or the shop where you purchased the unit.

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