

Hybrid Recorder



HR-700 Series



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

Shinko
North America Ltd.
www.shinkona.com

Standard Features

• True Hybrid Design

Units offer fully programmable features including: input types, chart speed, data recording session and intervals, scaling, alarm points, etc.

• True Multi-Input

Units feature true multi-input capabilities: 13 thermocouple types, 1 RTD type, 1 current inputs, and 7 voltage inputs.

• Computer Communications

All units feature standard RS-232C communication interface.

• Large/Full Function LED Display

All units feature full function digital display of channel number, PV value, and recording and alarm status, etc. Bright red 18mm display.

• 1, 2, And 6 Point Versions Available

Units are available in either 1 or 2 channel, or 6 point recording versions.

• Designed For Harsh Environments

Units rated to IP65, and constructed of flame resistant resin.

• Compact Design

Unit measures only 150mm in depth and weigh less than 1.5kg. Chart width 100mm.

• Safety Approvals

UL, CSA and CE Safety Approvals.

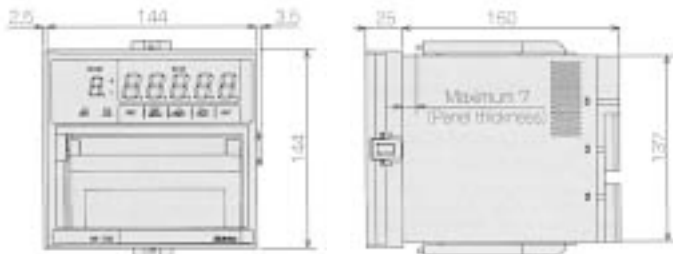
• Warranty

All units manufactured to strict ISO standards and offer full 2 year manufacturers warranty.

• Low Cost

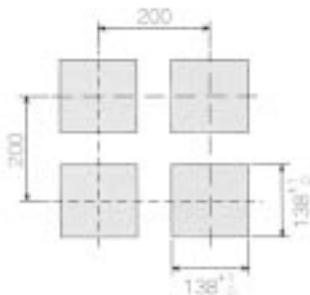
Most advanced price/performance package available.

External Dimensions

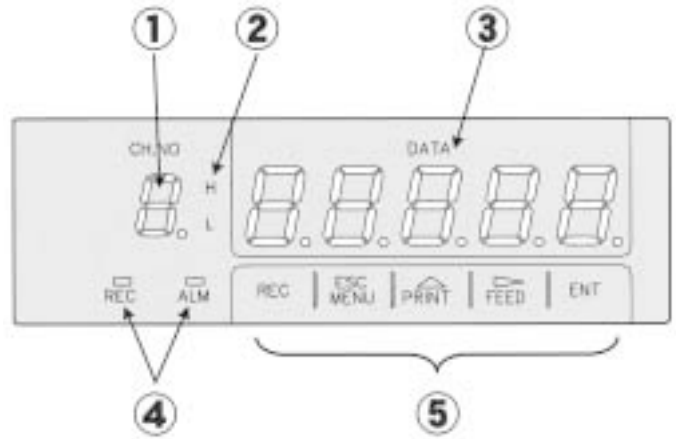


Allowable inclination angle, 0 to 30° or less.

Panel Cutout



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.

**High Performance Temperature
& Recording Instrumentation**
...at the lowest prices anywhere!

Input Range Table

	Input Type	Scale	
Thermocouple	B	0 to 1820°C	32.0 to 3308°F
	R	0 to 1760°C	32.0 to 3200°F
	S	0 to 1760°C	32.0 to 3200°F
	K	-200 to 1370°C	-328 to 2498°F
	E	-200 to 800°C	-328 to 1472°F
	J	-200 to 1100°C	-328 to 2012°F
	T	-200 to 400°C	-328 to 752°F
	Au-Fe	1.0 to 300K	-
	N	0 to 1300°C	32 to 2372°F
	PR40-20	0 to 1880°C	32 to 3416°F
	PL-II	0 to 1390°C	32 to 2534°F
	U	-200 to 400°C	-328 to 752°F
	L	-200 to 900°C	-328 to 1652°F
RTD	Pt100	-200 to 650°C	-328 to 1202°F
DC Voltage, Current	-10 to 10m V 0 to 20m V 0 to 50m V -200 to 200m V -1 to 1V 0 to 5V -10 to 10V 4 to 20mA	Scaling is possible within the range -32767 to 32767. Decimal point may be placed where required.	

• For DC current input a shunt resistor (250Ω) is required.

General 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-701, 6-point (Dot printing type): HR-706
Input	Multi-range (Types are selectable.) <ul style="list-style-type: none"> • 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 ----- $\pm 10\text{mV DC}$, 0 to 20MV DC, 0 to 50mV DC, $\pm 200\text{mV DC}$, $\pm 1\text{V DC}$, $\pm 10\text{V DC}$, 0 to 5V DC • DC current ----- 4 to 20mA DC (Needs external 250Ω of shunt resistor which is sold separately.) Scale ----- Refer to rated scale Input 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 --- $\pm 0.2\% \pm 1$ digit or less (Within the measuring range of mV or 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 $\pm 0.1\text{Hz}$) Common mode rejection rate ----- 140dB or greater (50/60 $\pm 0.1\text{Hz}$) Interchannel maximum noise voltage -- 200V AC 50/60Hz Vibration resistance ----- 10 to 60Hz 1m/s ² or less Shock resistance ----- 2m /s ² or less Clock accuracy ----- $\pm 50\text{ppm}$ or less
Recording	Chart paper ----- Width: 100mm, Length: 16m 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: 46 different chart speeds available within the range of 0 to 1200mm/h Dot printing type: 34 different chart speeds available 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 / 9600 / 19200bps
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 500V DC
Supply Voltage	100 to 240V AC, 50/60Hz, allowable voltage fluctuation ---- 85 to 264V AC
Dielectric Strength	1.5kV AC for 1 min between power terminal and ground terminal 500V AC for 1 min between input terminal and ground terminal 200V AC for 1 min between input terminal and the other input terminal
Ambient Surroundings	Temperature: 0 to 50 $^{\circ}\text{C}$, 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 $^{\circ}$ 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.

Options

Communication function [C5]	Communicating line: RS-485, Data transfer rate: 1200 / 2400 / 4800 / 9600 / 19200bps
DI function [RE1] [RE6]	Settable at 3 points (Maximum) Chart feed Start / Stop :Relay ON :Start Relay OFF :Stop Changing chart speed :Changes 1st with tuning to ON and 2nd with OFF Comment print : Prints comments with tuning to ON (Up to 16 characters per line) Log print : Prints with tuning to ON Date and time print : Prints date and time with tuning to ON
Empty paper tray detection function [FL]	Detects the paper-empty, stops recording, and performs the alarm output. (When adding this option, [LH3] or [LH6] needs to be specified.)
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 250V AC Maximum 3A (Resistive load) 30V DC Maximum 3A (Resistive load) 125V DC Maximum 0.5A (Resistive load)



Accessories

SPARE PARTS	PART NUMBER
Chart paper (20 charts per box)	H-10100
Cartridge pen (Red)	WPSR196A000001A
Cartridge pen (Blue)	WPSR196A000002A
Ribbon cassette (HR706)	WPSR188A000001A
Ribbon cassette (HR701 & 702)	HPSR001H002
Instruction manual (HR701 & 702)	HR72E3
Instruction Manual (HR706)	HR71E3

Shinko is an
ISO 9001
facility



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Terminal Wiring



1. Alarm output terminals (Option)
2. Input terminals
3. Power supply terminals
4. RS-485 Communication terminals (Option)
5. DI Function terminals (Option)
6. RS-232C Communication terminals

Model Number Configuration

HR-70		/M
NUMBER OF INPUTS	CODE	
1-Point (pen type)	1	
2-Point (pen type)	2	
6-Point (dotting type)	6	
INPUT	CODE	
Multi-range T/C, RTD, mA, VDC	M	
OPTIONS	CODE	
Communications (RS-485)	C5	
DI function (pen type)	RE1	
DI function (dot type)	RE6	
Paper empty detection	FL	
Alarm output function (pen type)	LH3	
Alarm output function (dot type)	LH6	