

## Specifications

## Recording and indicating section

Type of record: Cyclic printing type

Number of records: 3, 6 or 12-point

Recording color code:

3-point; 1 (red), 2 (blue), 3 (green)

6-point; 1 (purple), 2 (red), 3 (black),  
4 (green), 5 (blue), 6 (brown)

12-point; 1 (purple), 2 (red), 3 (black), 4 (green), 5 (blue),  
6 (brown), 7 (violet), 8 (scarlet), 9 (gray),  
10 (greenish brown), 11 (yellow), 12 (orange)

## Chart:

Type; Strip, rolled or folded

Width; 230mm

Calibrated width; 200mm

Length; Approx. 17m (35 days at 20mm/hr. speed.)

Chart speed; 20mm/hr. (1-speed)

2mm/hr., 20mm/min. (2-speed\*)

20, 60, 120mm/hr. (3-speed)

20, 60, 120mm/hr., 20, 60, 120mm/min.

(6-speed\*)

(Note; \* . . . Changeable by push buttons.)

## Scale:

Type; Horizontal

Length; 200mm

Scale graduation: Even scale

Cyclic printing period: 5 sec. (60Hz) or 6 sec. (50Hz)

Balancing time: Within 3 sec./FS

## Input section

## Inputs:

Thermocouple; Span of 100°C or greater or 3mV or greater.

(JIS CC (type T), IC (type J), CRC (type E),  
CA (type K), and PR (type R))

Resistance thermometer; Span of 20°C or greater.

(JIS Pt 100Ω at 0°C, or Ni)

Allowable "L" and "C" for external wiring:

L . . . 0.5mH

C . . . 0.15 μF

Sensor construction: Use sealed type sensor.

Intrinsic safety construction: JIS C0903 (object gas; 3nG5)

Grounding: Class 1 grounding

## Performance characteristics

## Accuracy:

Without linearizer; ±0.3% FS

With linearizer; ±0.35% FS

Dead band; Within 0.1% FS

## Common section

## Power supply:

100, 110/115, 120V AC (selectable with jumper)

200, 220, 240V AC (selectable with jumper), 50 or 60Hz

Power consumption: Approx. 15VA

Ambient temperature: -10 to +50°C

Relative humidity: 10 - 90% RH

Mounting: Panel flush mount.

Mounting angle: Up to 30° case rear down from horizontal.

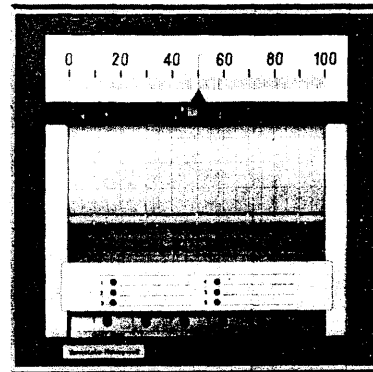
Case: Steel case, dustproof

Color finish: Dark beige

Dimensions: 288mmH x 288mmW x 350mmD

Net weight: Approx. 17.5 kg

**ELECTRONIK-NR  
MULTI-POINT RECORDER  
WITH CONTACT CONTROL  
Intrinsic Safety Explosion-  
proof Construction  
MODEL; NRH**



NRH68

## Options (Accessories)

Following options are available.

## (1) Alarm lamp unit

For identified alarm and unidentified self-hold relay unit

## (2) Burn-out feature

Up-scale or down-scale upon T/C failure.

## (3) Air purge connection

Connector; PT $\frac{1}{4}$  (ISO R7  $\frac{1}{4}$ ") or  $\frac{1}{4}$  NPT tap thread

## (4) Dual scale

a) Letters alone are dual.

b) Both letters and scales are dual.

## (5) Control (Alarm) unit (Applied to NRH□7/□8)

## Front set:

Unidentified; Common Hi, Common Lo,  
Common Hi and Lo

Unidentified (with self-hold relay unit);  
Common Hi, Common Lo, Common Hi  
and Lo

Identified; Common Hi, Common Lo, Common Hi  
and Lo

## Back set:

Unidentified; Common 2 setting, Common 3 settings,  
Common 6 settings

Identified; Individual 1 setting, Individual 2 settings  
Common 1 setting, Common 2 settings

Setting accuracy; ±0.5% FS

Setting dead bank; 0.5% FS or less

Contact rating; AC 200V 2A, 100VA  
DC100V, 2A, 50W  
(when resistive load)

Input impedance;

Input	Balanced	Unbalanced
Thermocouple	20 MΩ	5 KΩ
DC current	2.49 Ω	2.49 Ω
DC voltage	500 KΩ	500 KΩ

Notes: 1) For combinations of identified alarm and printing point number, refer to the model number table.

2) No combination of front-set and back-set is possible.

The following is the semi-standard option.

(6) Front mask semi-standard color (Y100B, D, E); See page 3.

**Standard Range**

Type	Scale Range	Chart Range	Type	Scale Range	Chart Range	
CC T/C (Type T)	0 ~ 200°C	0 ~ 200	PR/TC (Type R)	0 ~ 1000°C	0 ~ 100	
	0 ~ 250	0 ~ 250		0 ~ 1200	0 ~ 120	
	0 ~ 300	0 ~ 300		0 ~ 1400	0 ~ 140	
	100 ~ 300	0 ~ 200		0 ~ 1600	0 ~ 160	
	-50 ~ 100	0 ~ 150		400 ~ 1400	0 ~ 100	
IC T/C (Type J)	0 ~ 200°C	0 ~ 200		400 ~ 1600	0 ~ 120	
	0 ~ 250	0 ~ 250		700 ~ 1400	0 ~ 700	
	0 ~ 300	0 ~ 300		800 ~ 1600	0 ~ 800	
	0 ~ 400	0 ~ 400		Pt bulb (100Ω at 0°C)	0 ~ 50°C	0 ~ 500
	0 ~ 500	0 ~ 500			0 ~ 70	0 ~ 700
	0 ~ 600	0 ~ 600	0 ~ 100		0 ~ 100	
	100 ~ 300	0 ~ 200	0 ~ 120		0 ~ 120	
200 ~ 500	0 ~ 300	0 ~ 150	0 ~ 150			
300 ~ 600	0 ~ 300	0 ~ 200	0 ~ 200			
0 ~ 200°C	0 ~ 200	0 ~ 250	0 ~ 250			
CRC T/C (Type E)	0 ~ 250	0 ~ 250	0 ~ 300	0 ~ 300		
	0 ~ 300	0 ~ 300	0 ~ 400	0 ~ 400		
	0 ~ 400	0 ~ 400	0 ~ 500	0 ~ 500		
	0 ~ 500	0 ~ 500	0 ~ 600	0 ~ 600		
	0 ~ 600	0 ~ 600	50 ~ 100	0 ~ 500		
	100 ~ 300	0 ~ 200	100 ~ 200	0 ~ 100		
	200 ~ 400	0 ~ 200	100 ~ 300	0 ~ 200		
	300 ~ 600	0 ~ 300	200 ~ 400	0 ~ 200		
CA T/C (Type K)	0 ~ 300°C	0 ~ 300	300 ~ 500	0 ~ 200		
	0 ~ 400	0 ~ 400	- 20 ~ 30	0 ~ 50		
	0 ~ 500	0 ~ 500	- 20 ~ 80	0 ~ 100		
	0 ~ 600	0 ~ 600	- 40 ~ 60	0 ~ 100		
	0 ~ 800	0 ~ 800	- 50 ~ 50	-50 ~ 50		
	0 ~ 1000	0 ~ 100	- 50 ~ 100	0 ~ 150		
	0 ~ 1200	0 ~ 120	- 50 ~ 150	0 ~ 200		
	100 ~ 500	0 ~ 400	-100 ~ 50	0 ~ 150		
	200 ~ 500	0 ~ 300	-200 ~ 50	0 ~ 250		
	200 ~ 700	0 ~ 500	-200 ~ 150	0 ~ 700		
	200 ~ 1000	0 ~ 800	Ni bulb (YH standard)	0 ~ 50°C	0 ~ 500	
	300 ~ 600	0 ~ 300		0 ~ 100	0 ~ 100	
	300 ~ 800	0 ~ 500		0 ~ 150	0 ~ 150	
	400 ~ 800	0 ~ 400		- 20 ~ 100	-20 ~ 100	
	400 ~ 1000	0 ~ 600				
	500 ~ 800	0 ~ 300				
	500 ~ 1000	0 ~ 500				
	600 ~ 1000	0 ~ 400				
	600 ~ 1200	0 ~ 600				
	700 ~ 1200	0 ~ 500				

Note: 1) Ranges of thermocouple and Pt resistance bulbs are as per JIS (Japanese Industrial Standard).

2) Charts above are all evenly graduated.

### Model Number Table

Ex: NRH-37-1131F-APR-A10

Basic Model No.	Selectable items				Options		Description
	Type	Type of input	Power supply	Chart speed	Type of chart	I	
NRH30							3-point printing recorder
NRH60							6-point printing recorder
NRH90							12-point printing recorder
NRH37							3-point printing recorder, with front-set alarm unit
NRH67							6-point printing recorder, with front-set alarm unit
NRH97							12-point printing recorder, with front-set alarm unit
NRH38							3-point printing recorder, with back-set alarm unit
NRH68							6-point printing recorder, with back-set alarm unit
NRH98							12-point printing recorder, with back-set alarm unit
		-21					Thermocouple input CC (JIS) (Type T)
		-22					Thermocouple input IC (JIS) (Type J)
		-23					Thermocouple input CRC (JIS) (Type E)
		-24					Thermocouple input CA (JIS) (Type K)
		-25					Thermocouple input PR (JIS) (Type R)
		-29					Thermocouple input Other than the above (Special)
		-31					Resistance thermometer input 100Ω (JIS)
		-32					Resistance thermometer input Ni (YH standard)
		-39					Resistance thermometer input Other than the above (Special)
			1				AC200, 220, 240V, 50Hz
			2				" " , 60Hz
			3				AC100V , 50Hz
			4				" " , 60Hz
			5				AC110/115V, 50Hz
			6				" " , 60Hz
			7				AC120V , 50Hz
			8				" " , 60Hz
				1			20 mm/h
				2			20 mm/h – mm/min
				3			20·60·120 mm/h
				6			20·60·120 mm/h – mm/min
					R		Rolled type
					F		Folded type
					-X		No option (I)
					-A		With alarm lamp unit (added for identified alarm, printing type)
					-B		Burn-out feature (Up scale)
					-C		" (Down scale)
					-P		Air purge connection
					-Q		Dual scale (Letters only)
					-R		" (Both letters and scales)
					-X		No option (II) [Applied to NRH□0]
					-A10		Front set, common Hi setting, unidentified
					-A20		" , common Lo setting, unidentified
					-A30		" , common Hi/Lo setting, unidentified
					-A40		" , common Hi setting, unidentified, self-hold relay unit
					-A50		" , common Lo setting, unidentified, self-hold relay unit
					-A60		" , common Hi/Lo setting, unidentified, self-hold relay unit
					-A7□		" , common Hi setting, identified
					-A8□		" , common Lo setting, identified
					-A9□		" , common Hi/Lo setting, identified
					-B10		Back set, common 2 settings, unidentified
					-B20		" , common 3 settings, unidentified
					-B30		" , common 6 settings, unidentified
					-B5□		" , individual 1 setting, identified
					-B6□		" , individual 2 setting, identified
					-B8□		" , common 1 setting, identified
					-B9□		" , common 2 settings, identified

Notes:

- The numbers of identified alarms.
  - [3]; All of 3 printing points.
  - [5]; 3 selected points among 6 printing points.
  - [6]; All 6 printing points.
  - [7]; 3 selected points among 12 printing points.
  - [8]; 6 selected points among 12 printing points.
  - [9]; All of 12 printing points.

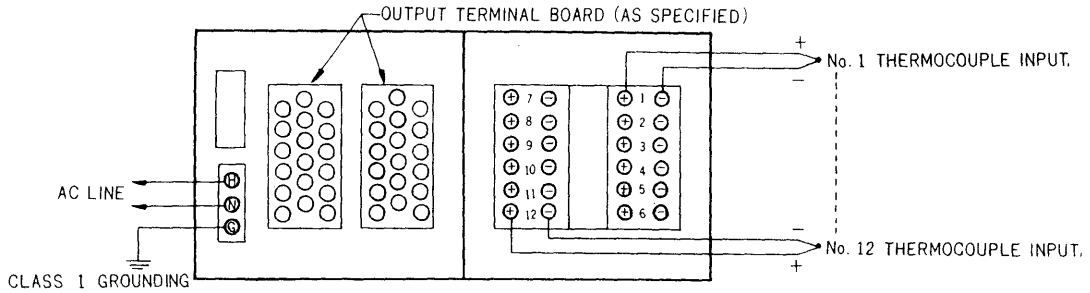
No combination of A99, B59, B66, B68, B69, B99 is possible.
- No combination between front-set and back-set is possible.
- When specifying semi-standard option (Y□), please write as: NRH37Y-1131F-APR-A10, Y100B
- Front mask semi-standard color (Y100B ~ E)

Parts	Bezel	Door	Front frame
Y No.			
Y100B	Mist green	(2.5G 5/1.5)	
Y100D	Black	(N1.2)	
Y100E	Jade green	(7.5BG 4/1.5)	

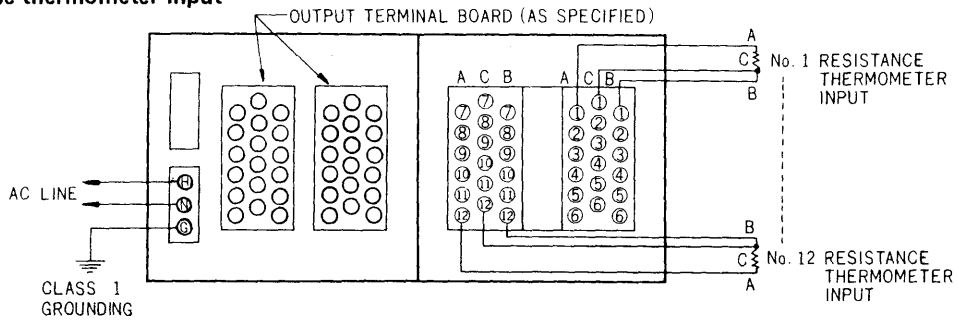
Applied to NRH□7  
Applied to NRH□8

# Terminal Connections

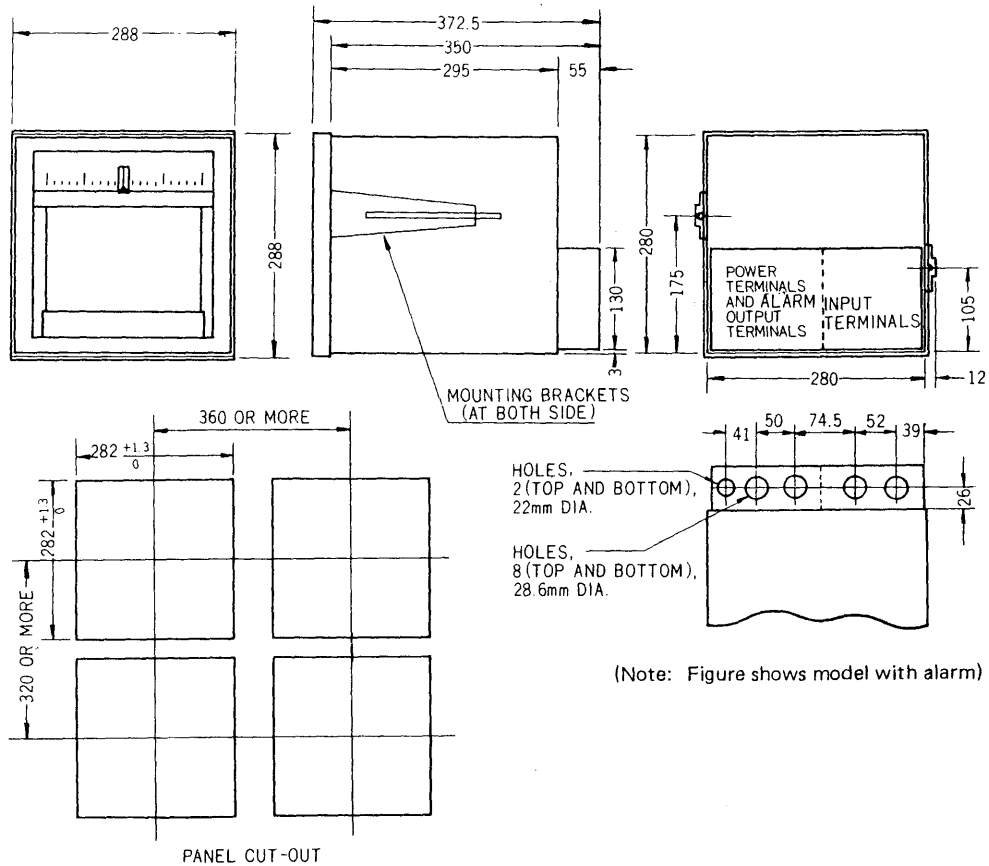
## For thermocouple



## For resistance thermometer input



# Dimensions



(Note: Figure shows model with alarm)

\* Specifications are subject to change without notice.

## Ordering Information

When ordering, please specify:

- 1) Model No.
- 2) Scale range
- 3) Options