FOR CONTINUOUS MONITORING

MULTI-CHANNEL GAS DETECTION AND ALARM SYSTEM

RM-580 Series

COMBUSTIBLE/OXYGEN/TOXIC GAS

- Three color display (green/orange/red) indicates hazardous levels
- Combustible gases can be detected in automatically changing ranges (from PPM to % LEL) with one unit (NC-581W)!

■ Applications

- Petro-refinery, petrochemical plants
- Chemical plants
- Semi-conductor manufacturing plants
- Engineering public work field
- Power station, gas work
- Iron and steel works

■ Features

- Available to connect to various gas sensors
- Easy to read three color (green/orange/red) LED bar-graph display (52 segments)
- Combustible gases detectable in wide range (from PPM to %LEL) with one display unit (NC-581W)
- Automatically changes from ppm range to %LEL range (NC-581W)
- Two alarm levels
- Peak hold function
- Highly integrated compact design with plug-in type unit
- Zero suppression function
- Alarm contact interruption function (Maintenance mode)
- Alarm test mode
- Auto zero function
- Ability to indicate a flow failure alarm
- Output signal (4~20mADC) is provided

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WIDE CHOICE AND HIGH RELIABILITY

Alarm buzzer

Power light/ Reset switch

Fastener for securing the unit
(Allows removal and securing the unit with a 90 degree turn.)

LED bargraph meter
Brilliant multicolor LED bargraph meter. The color of the LED display automatically changes to (3) different colors (green/orange/red) according to the preset alarm level.

Dual range (model NC-581W)
Automatically changing detection ranges (from ppm to %LEL) according to the gas concentration value.

Power light/maintenance mode switch

Maintenance mode lamp
This lamp lights on maintenance. The model NC-581W provides (2) lamps, (1) for ppm range and (1) for %LEL range.

1st alarm light
Flicker at alarm (latched mode)
Illumination after reset (non-latched mode)

2nd alarm light
Flicker at alarm (latched mode)
Illumination after reset (non-latched mode)

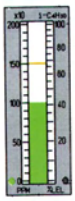
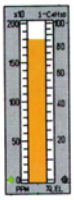
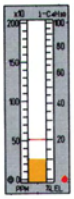
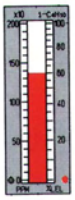
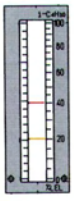
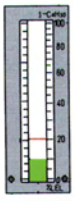
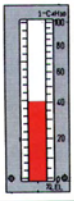
Adjustment potentiometers & switches

Buzzer unit Model TAN-580

Indicator/alarm unit model GP-581

The RM-580 series accommodated both diffusion and sample draw types of detectors, allowing for maximum flexibility in meeting your gas detection needs.

Display pattern in (3) three colors (models NC-581W and GP-581)

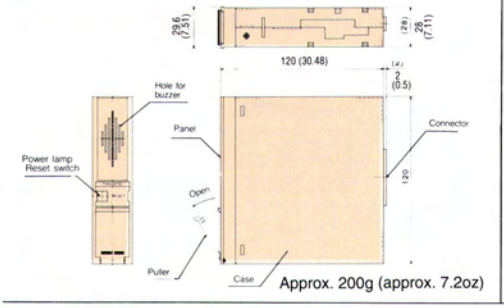
Indicator/ alarm unit	NC-581W	NC-581W	NC-581W	NC-581W	GP-581	GP-581	GP-581
Alarm setting	1st alarm point (orange) is set at PPM range	1st alarm point	2nd alarm point (red) is set at % LEL range	2nd alarm point	1st alarm point: Orange and 2nd point: Red	One point: red	One point
Gas concentration	Below 1st alarm point	Over 1st alarm point	Below 2nd alarm point	Over 2nd alarm point	Same as the pattern of NC-581W	Below the alarm point	Over the alarm point
Appearance							
Color of LED	Green	Orange	Orange	Red	Same as NC-581W	Green	Red
Maintenance Mode lamp	Lighting in green at PPM side	Lighting in green at PPM side	When the PPM range is over scale, it changes into the % LEL range. Lighting in red at %LEL side.	Lighting in red at %LEL side	Unlit	Unlit	Unlit

Model	Detection principle	Gases detected	Model	Detection principle	Gases detected
GP-581	Catalytic combustion	Combustible gases	EC-582	Electrochemical cell	Toxic gases
NC-581	New ceramic	Combustible gases	TX-582	Membrane covered electrode	Ammonia gas
NC-581W	New ceramic	Combustible gases	OX-581	Galvanic cell	Oxygen
GH-581	Semiconductor	Combustible/toxic gases	OX-582	Galvanic cell	Oxygen
SP-581	Catalytic/semiconductor combination	Combustible/toxic gases	RM-582	For input from others by 2 cores	4-20mA input/ 1-5V input

RM-580 SERIES

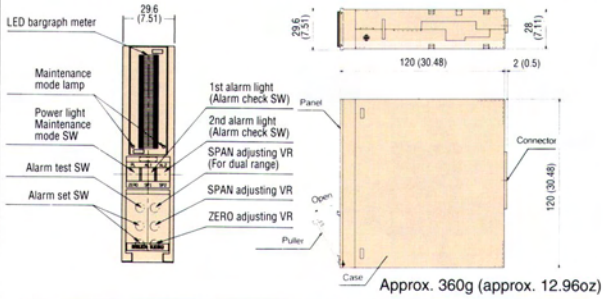
OUTER DIMENSIONS

Buzzer unit TAN-580



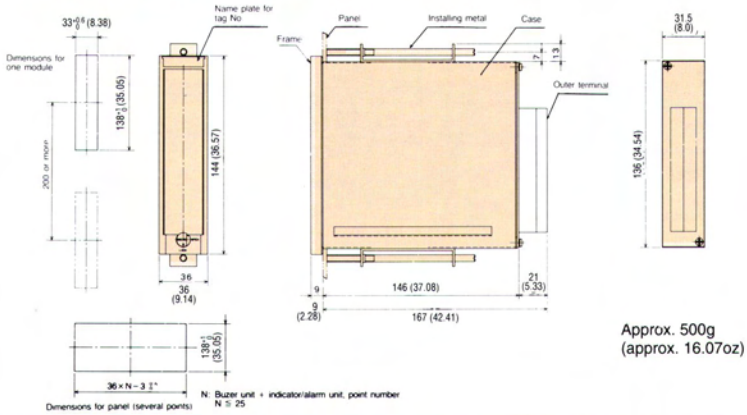
Approx. 200g (approx. 7.2oz)

Indicator/alarm unit □□-58□



Approx. 360g (approx. 12.96oz)

Single-channel case 570-SR



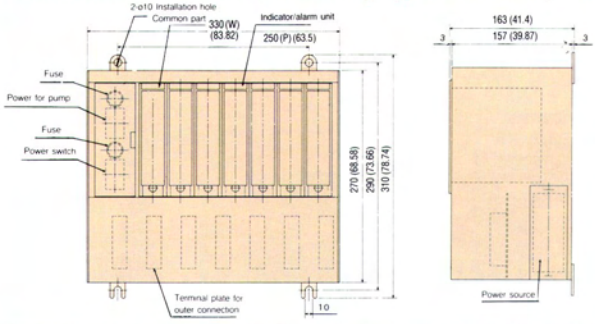
Approx. 500g (approx. 16.07oz)

★ Single-channel case

The single-channel case allows the use of outer alarm and reset circuits and mounting. Therefore, this configuration is available for mounting as an additional system to an existing panel and gives maximum flexibility for configuring multi-point systems.

★ Plug-in type single case is shown on page 7 for wiring connections.

Multi-channel case (Wall mounting type, 6-channel) 570-□□W

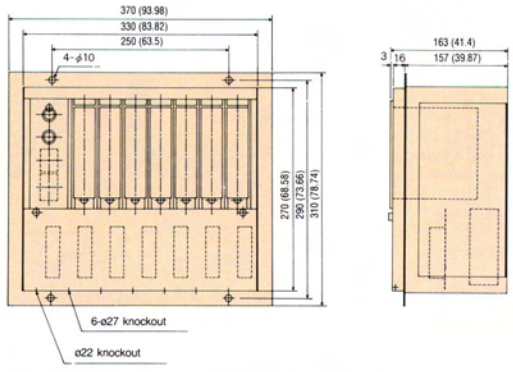


	W	P	Weight
4	258mm (65.53in)	178mm (45.21in)	Approx. 4kg (1.81lb)
6	330mm (83.82in)	250mm (63.5in)	Approx. 6.5kg (2.94lb)
9	438mm (111.25in)	366mm (92.96in)	Approx. 8.5kg (3.85lb)
12	546mm (138.68in)	474mm (120.39in)	Approx. 10kg (4.53lb)

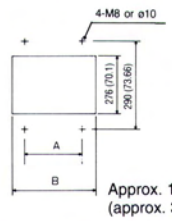
★ Multi-channel case

The multi-channel cases are available in four sizes, 4,9,6 and 12 point capacities. The indicator/alarm units stated in the specifications can be mounted in line. Because of the internal power unit inside of the case. use of a commercial power source allows for a minimum of work in mounting, which is only to connect the detectors. There are two types of multi-channel units, panel mounting and wall mounting.

Multi-channel case (Panel mounting type, 6-channel) 570-□□R



Panel cut-out dimensions

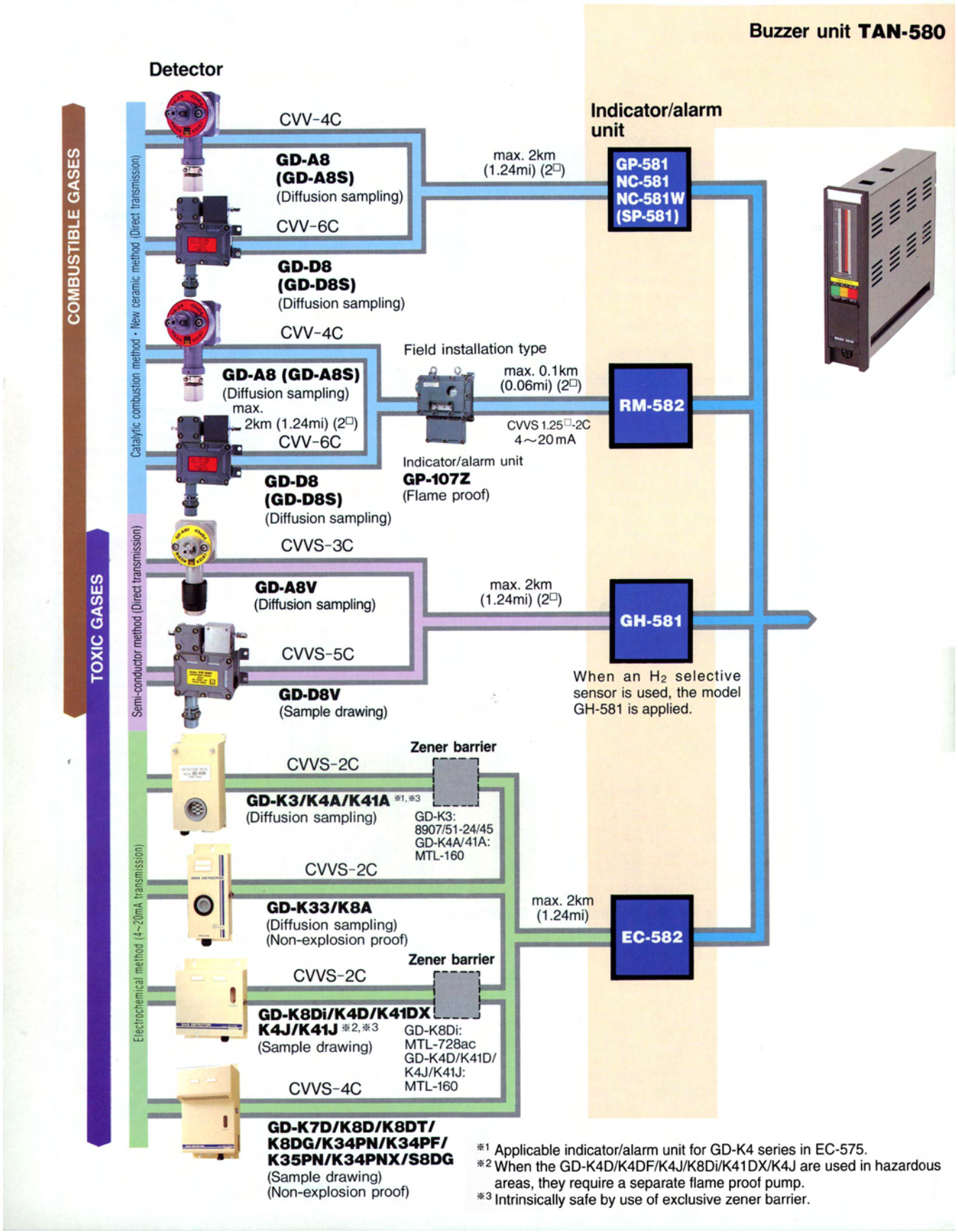


Approx. 100g (approx. 3.21oz)

	A	B	Weight
4	178mm (45.21in)	270mm (68.58in)	Approx. 5kg (2.26lb)
6	250mm (63.5in)	342mm (86.86in)	Approx. 7kg (3.17lb)
9	366mm (92.96in)	450mm (114.3in)	Approx. 7.5kg (3.39lb)
12	474mm (120.39in)	558mm (141.73in)	Approx. 11.5kg (5.2lb)

*** The unit of outer dimensions is as follows.**
a) Dimension without enclosed by the mark ( ): The unit is "mm".
b) Dimension with enclosed by the mark ( ): The unit is "inch".

BASIC SYSTEM OUTLINE —— RM-580 SERIES FOR MULTIPURPOSE



※1 Applicable indicator/alarm unit for GD-K4 series in EC-575.
※2 When the GD-K4D/K4DF/K4J/K8Di/K41DX/K4J are used in hazardous areas, they require a separate flame proof pump.
※3 Intrinsically safe by use of exclusive zener barrier.

EM OUTLINE — RM-580 SERIES FOR MULTIPURPOSE

Buzzer unit **TAN-580**

Indicator/alarm unit

GP-581
NC-581
NC-581W
(SP-581)

Model 570-SR
Single-channel case

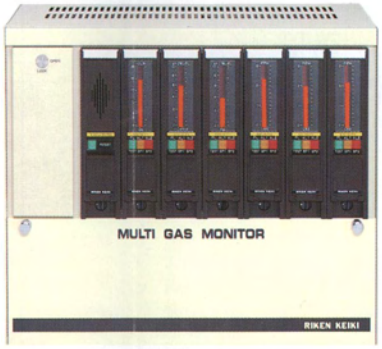
570-04W/R (4 channel)
570-06W/R (6 channel)
570-09W/R (9 channel)
570-12W/R (12 channel)
Multi-channel case

Indicator/alarm unit

TX-582

When zener barrier is used, model TX-582 is applied.

RM-582



OX-581

max. 600m (1980ft)

GH-581

When an H_2 selective sensor is used, the model GH-581 is applied.

Central monitoring system

OX-582

max. 2km (1.24mi)

max. 2km (1.24mi)

EC-582

RM-582

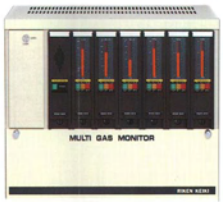
max. 2km (1.24mi)

※1 Applicable indicator/alarm unit for GD-K4 series in EC-575.
※2 When the GD-K4D/K4DF/K4J/K8Di/K41DX/K4J are used in hazardous areas, they require a separate flame proof pump.
※3 Intrinsically safe by use of exclusive zener barrier.

FOR MULTIPURPOSE GAS DETECTION

Model 570-SR
Single-channel case

570-04W/R (4 channel)
570-06W/R (6 channel)
570-09W/R (9 channel)
570-12W/R (12 channel)
Multi-channel case



Central monitoring system

Indicator/alarm unit

TX-582

When zener barrier is used, model TX-582 is applied.

OX-581

OX-582

RM-582

Detector

Zener barrier
MTL-728ac
(only for GD-E3)

CVVS-2C
GD-E3 ※4
(Diffusion sampling) ※3

CVVS-4C
GD-E3D
(Sample drawing)

※4 When the GD-E3 is required for use as a sample drawing unit in hazardous areas, the flow through type GD-E3 sampling adapter can be provided. In this case, it requires a separate flame proof pump and an exclusive zener barrier, MTL-728ac.

Membrane covered electrode method (for NH_3)

TOXIC GASES

max. 600m
(1980ft)

Zener barrier
8907/22-05/110

CVVS-2C
GD-F3A ※3
(Diffusion sampling)

CVVS-2C
GD-F4A ※3,※5
(Flow-thru type)

CVVS-2C
GD-F44
(Flame proof design)
(Diffusion sampling)

Galvanic cell method (direct transmission)

OXYGEN

max. 2km
(1.24mi)

Zener barrier
8907/51-24/45

CVVS-2C
GD-F3A-SC ※3
(Diffusion sampling)

CVVS-2C
GD-F4A-SC ※3,※5
(Flow-thru type)

Galvanic cell method (4~20mA transmission)

max. 2km
(1.24mi)

4~20mA

Signal transmitter

Other detectors

Other information such as current, pressure temperature.

Intrinsically safe design specification shall require a special zener barrier between an indicator/alarm unit and a detector head.

※5 When GD-F4A/F4A-SC are used in a hazardous area, they require a separate flame proof pump.

Specifications/Terminal output

SPECIFICATIONS FOR INDICATOR/ALARM UNIT

TYPE	GP-581	NC-581	NC-581W	GH-581	SP-581	EC-582	TX-582	OX-582	OX-581	Buzzer Unit TAN-580
Detection principle	Catalytic Combustion	New ceramic		Semiconductor	Catalytic/ semiconductor combination	Electrochemical	Membrane covered electrode	Galvanic cell		———
Gas detected	Combustible gases			Combustible/toxic gases		Toxic gases	Toxic gases for NH_3 and (C_2H_5)	Oxygen		———
Detection range	0~100%LEL	0~several thousand ppm	Dual ranges CH_4: 0~5000ppm 0~100%LEL $i\text{-}C_4H_{10}$: 0~2000ppm 0~100%LEL	0~several hundred or thousand ppm		In ppm range 0~150ppm	0~75ppm or 150ppm	0~5, 10, 25 or 50%		———
Indication	Brilliant, multicolor LED bargraph (52 segments), Gas concentration indication (0~F.S.) (50 segments)*6									———
Initial clear*1	Provided (approx. 25 sec.)									———
Zero suppression	Built-in (To suppress zero fluctuation caused by change of atmosphere									———
Alarm accuracy	Within ±25% for indication value*2					Within ±30% for alarm setting value		Within 1.0vol% for indication value		———
Operating temperature & humidity	0~40°C (0~104°F), 10~90%RH									———
Power supply Single	DC24V ±10%									
Power supply Multi	AC100/110/115V or AC200/220/240W									
Power consumption	10W (DC) 17VA (AC)*5			11W (DC) 18VA (AC)		6W (DC) 10VA (AC)*5		7W (DC) 12VA (AC)*5		2W (DC) 3VA (AC)
Transmission distance	CH_4: Max. 2km (1.24mi) Combustibles: Max. 3km (1.86mi)					Max. 2km (1.24mi) by 2 shielded cable		Max. 2km (1.24mi) by 2 shielded cable	Max. 600m (1980ft) by 2 shielded cable	———
Alarm indication	1st alarm flashing LED (orange), Latched mode 2nd alarm flashing LED (red), Latched mode				Continuous light when reset Non-latched mode					Latched mode*3
Alarm contact	1a or 1b (Both 1st and 2nd alarm) latched mode, Non-latched mode when reset									
Output signal	4~20mA DC	In ppm range: 4~20mADC In %LEL range: 24mADC*8	4~20 mA DC							
Alarm delay circuit	Max. 12.5sec. Adjustable to each 0.5sec.									
Transmission method	Sensor output direct transmission					4~20mA (EC-582)	4~20mA transmission		Sensor output direct transmission	
Trouble alarm	Flashing LED (green), Non-latched (except OX-581) 1a or 1b, non-latched (except OX-581)									1a or 1b Non-Latched mode
Case type	Multicase: Munsell 10YR 4.7/035, Frame: Munsell 5YR 2/1.5									
	570-SR (1 point type), Case: Munsell 10YR 4.7/0.5, Frame, Munsell 5YR 2/1.5									

*1 Initial clear. Time delay to prevent false alarm when powered on.
*2 Alarm accuracy for toxic gas detection is within ±30% of indicated value.
*3 Buzzer (Silenced with reset switch)
*4 Total alarm (gas and trouble).
*5 Add 18VA (AC) in case of multi-unit case.
*6 Color pattern of LED bargraph:
- Below 1st alarm...green; Over 1st alarm...orange; Over 2nd alarm...red
- When only the 1st alarm is set, the color is green below the 1st alarm. The color changes to red, over the 1st alarm.

*7 Model NC-581W: Alarm setting provided are one point only in ppm range and one point only in %LEL range.
*8 In %LEL range, the output signal is a steady 24mA DC. The signal does not change from this level. Please note that it is impossible to see the gas concentration by the output signal in %LEL range.

***Specifications subject to change without notice.**

TERMINAL OUTLINE FOR SINGLE CASE

INDICATOR/ALARM UNIT

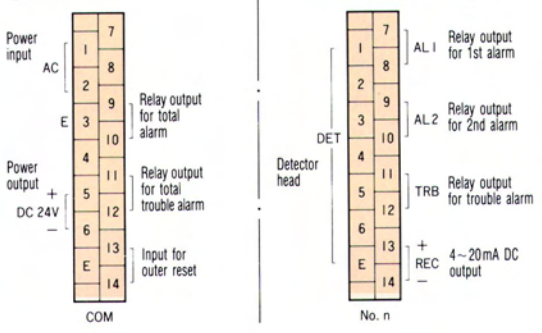
Operation signal	Terminal #		Operation signal
Power input + DC 24V	⑪	①	Relay output for 1st alarm
Power input − DC 24V	⑫	②	Relay output for 1st alarm
Reset signal input	⑬	③	Detector head
Alarm output	⑭	④	Detector head
Relay output for trouble alarm	⑮	⑤	Detector head
Relay output for trouble alarm	⑯	⑥	Detector head
Vacant terminal	⑰	⑦	Relay output for 2nd alarm
Output for trouble signal	⑱	⑧	Relay output for 2nd alarm
Test input	⑲	⑨	+ DC 4~20mA − output
Common (for ⑬, ⑭, ⑱, ⑲)	⑳	⑩	+ DC 4~20mA − output

BUZZER UNIT

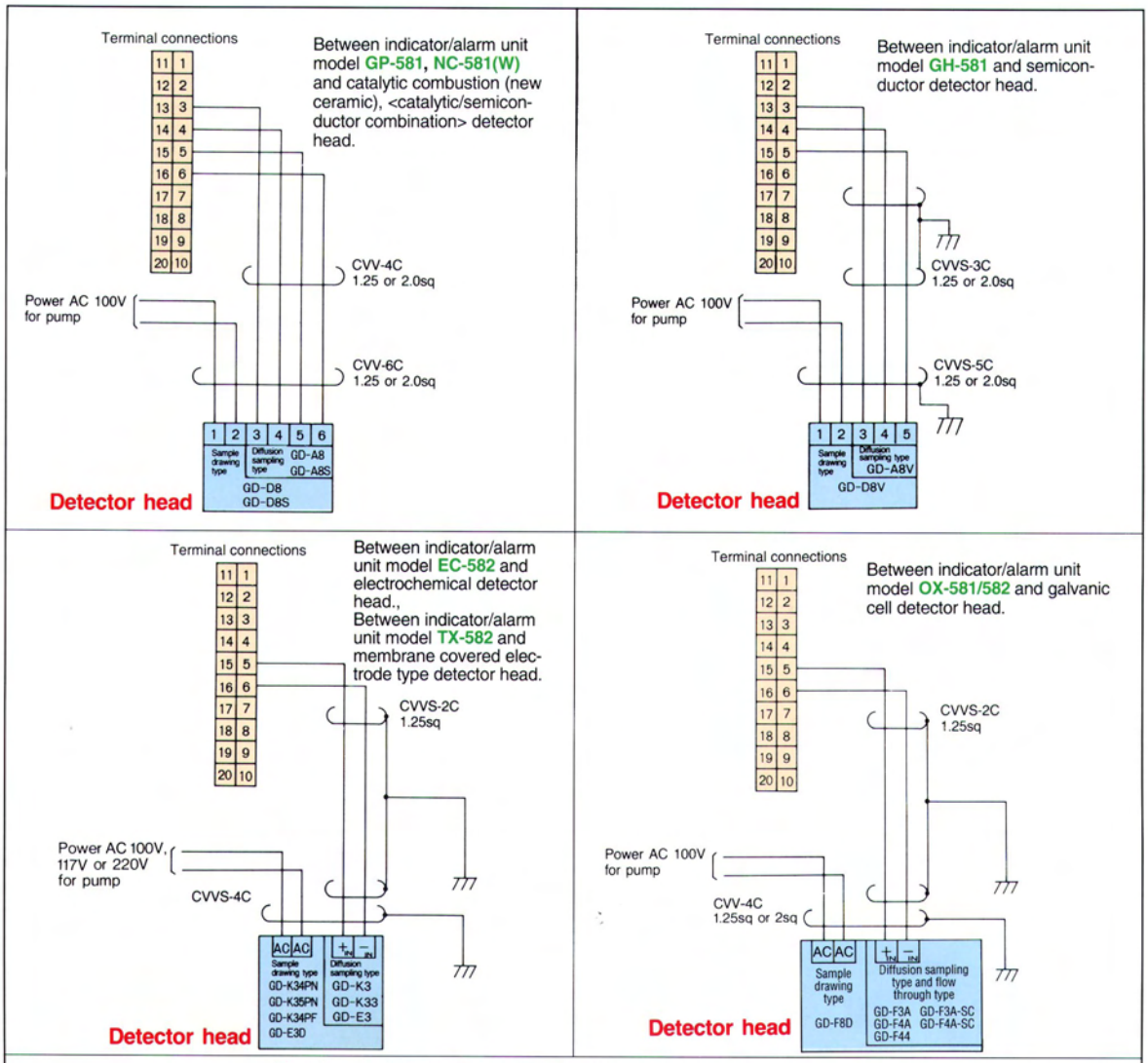
Operation signal	Terminal #		Operation signal
Power input + DC 24V	⑪	①	
Power input − DC 24V	⑫	②	
Reset signal input	⑬	③	Vacant terminal
Alarm input	⑭	④	Vacant terminal
Relay output for all total trouble alarm	⑮	⑤	Vacant terminal
Relay output for all total trouble alarm	⑯	⑥	Vacant terminal
Vacant terminal	⑰	⑦	Relay output for all total alarm
Input for trouble signal	⑱	⑧	Relay output for all total alarm
Input for outer reset signal	⑲	⑨	Vacant terminal
Common (for ⑬, ⑭, ⑱, ⑲)	⑳	⑩	Vacant terminal

TERMINAL OUTLINE FOR MULTI-UNIT CASE

- **COM terminal** (Buzzer unit)
- **No. n terminal** (Indicator/alarm unit)



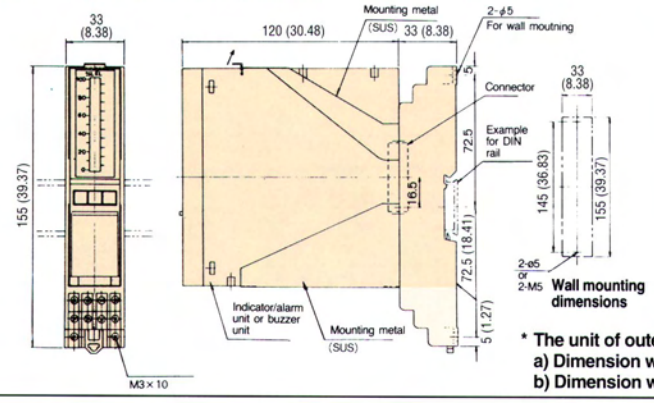
Wiring Connection

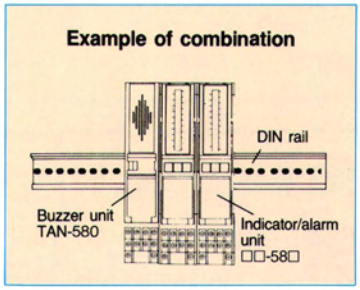


★ **Plug-in type: How to use the indicator/alarm unit.**

In addition to the single channel and the multi-channel unit, the RM-580 series is available to configure a highly integrated gas alarm system by itself. A special socket installed in the case allow these units to be plugged into a DIN installation rail in. Furthermore, the indicator/alarm unit provides a gas concentration analog output signal (4~20mA) for additional transmission flexibility.

Plug-in type unit case with terminal plate 570-TM





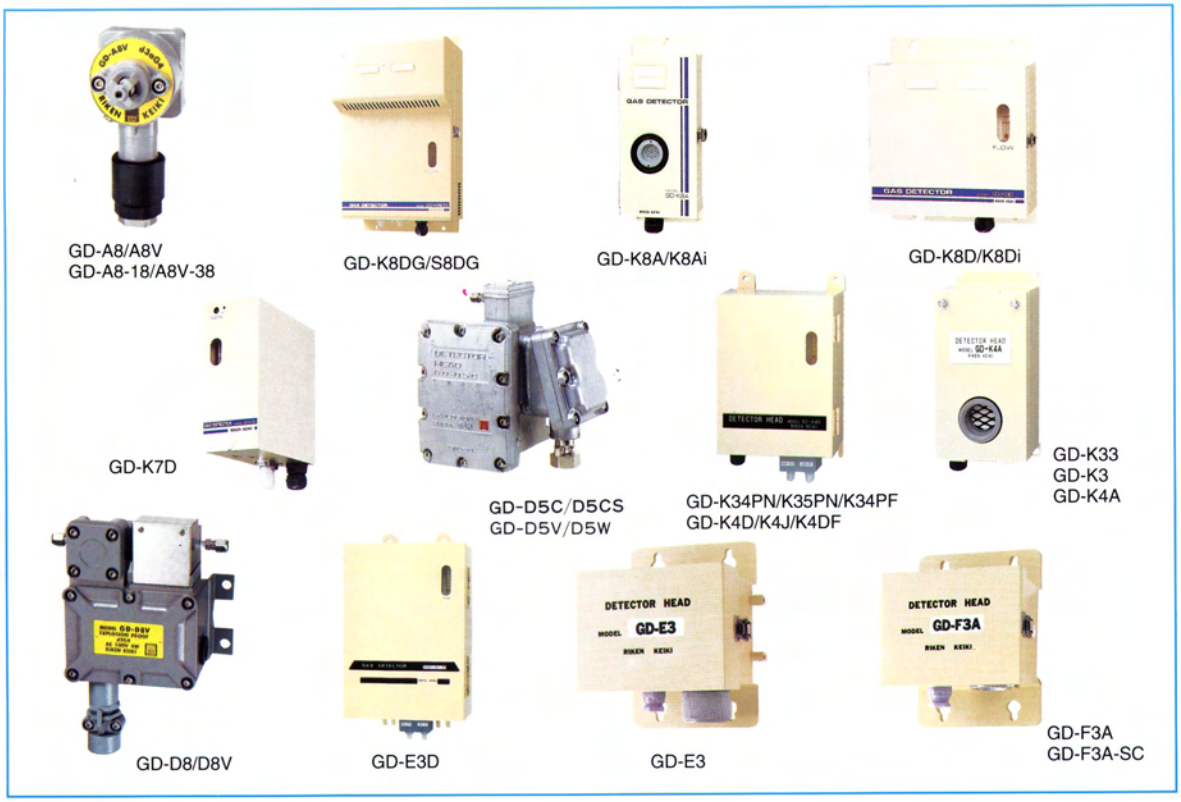
*** The unit of outer dimensions is as follows.**

a) Dimension without enclosed by the mark ( ): The unit is "mm".

b) Dimension with enclosed by the mark ( ): The unit is "inch".

APPLICABLE DETECTOR HEADS

	GP-581 NC-581 NC-581W SP-581	GH-581	EC-582	TX-582	OX-582	OX-581
Intrinsically safe or flame proof design. Diffusion sampling	GD-A8 GD-A8-18 GD-A8S	GD-A8V GD-A8V-38 GD-A43T GD-A43W	GD-K3 GD-K4A with zener barrier	GD-E3 with zener barrier	GD-F3A-SC with zener barrier	GD-F3A with zener barrier GD-F44
Intrinsically safe or flame proof design. Sample drawing	GD-D8/D8S GD-D8AS/D8AS GD-D5C/D5CS GD-A8AS/D8SAS	GD-D8V GD-D8VAS GD-D5V/D5W GD-A8VAS	GD-K4D/K4J/K8Di with separate flame proof pump and zener barrier	GD-E3 with separate flame proof pump and zener barrier	GD-F4A-SC with separate flame proof pump and zener barrier	GD-F4A with separate flame proof pump and zener barrier
Non-explosion proof. Diffusion sampling			GD-K3 GD-K33 GD-K8A	GD-E3	GD-F3A-SC	GD-F3A
Non-explosion proof. Sample drawing	GD-B2	GD-B2V	GD-K34PN GD-K35PN GD-K34PF GD-K7D GD-K8D GD-K8DG GD-S8DG	GD-E3D	GD-F4A-SC with separate pump	GD-F4A with separate pump GD-F8D



RKI INSTRUMENTS

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