

# RIKEN

# MULTI-CHANNEL GAS MONITORING SYSTEM

COMBUSTIBLE

OXYGEN

TOXIC GAS

## RM-590 SERIES



Indicator/alarm unit

Buzzer unit

### Typical applications

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



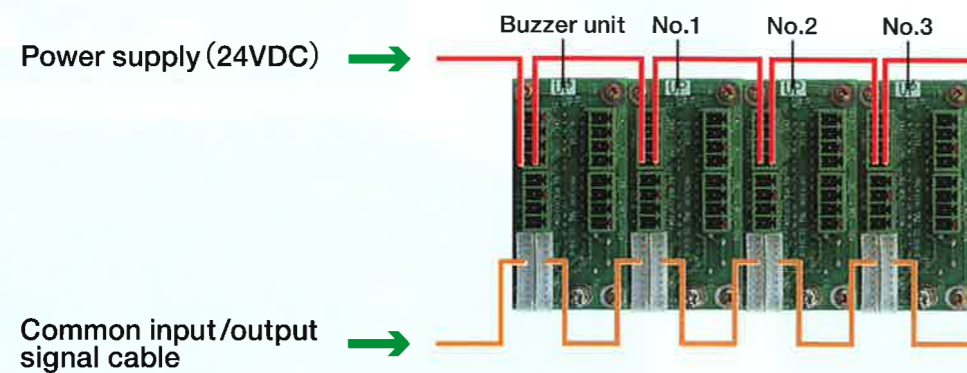
TOKYO PLANT · OKEGAWA FACTORY  
RIKEN KEIKI ESAN SEISAKUSHO CO., LTD

TOKYO PLANT · OKEGAWA FACTORY

## Features

- 4 digits digital LED display for gas concentration
- 2 alarm levels with relays
- User selectable alarm functions (latching, non-latching, locking) and alarm test functions
- Integrated compact design with easy plug-in type module
- Zero suppression function (Maintenance mode function)
- Accepts flow failure alarm
- Provides alarm trend memory
- Wide variety of detectable gases and detector heads
- LonWORKS network available as option
- Applies wrong insertion preventive pin and one-touch wiring (easy for cross-wiring) for single case.

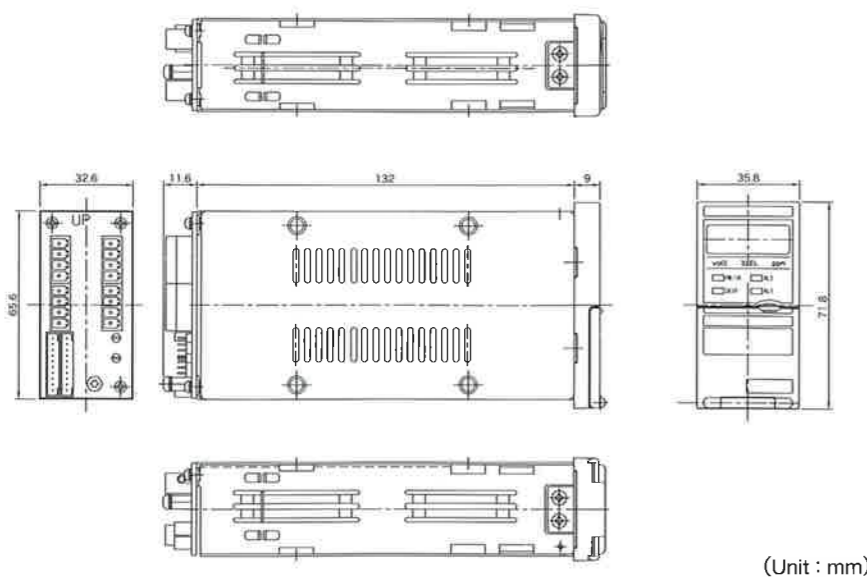
Indicator/alarm unit



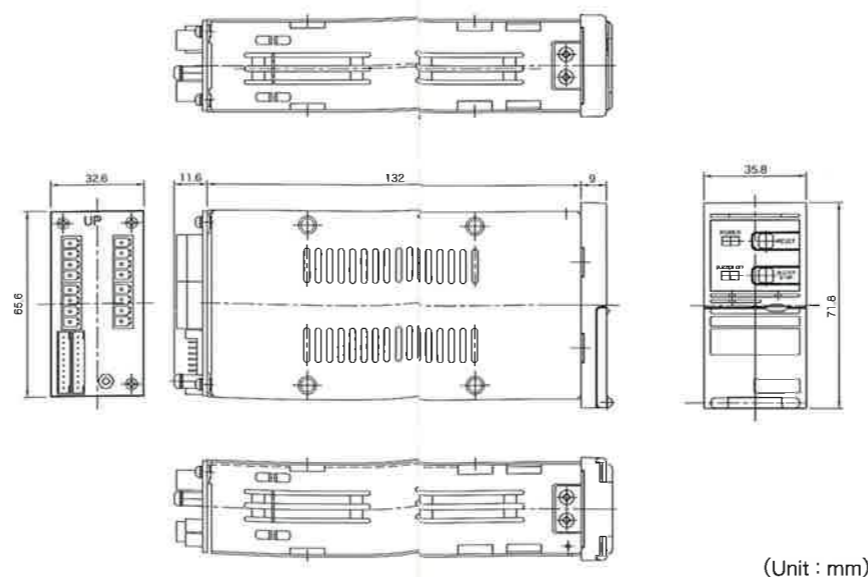
- Multi-unit case applies coupling unit enable to house upto 12 indicator/alarm units.



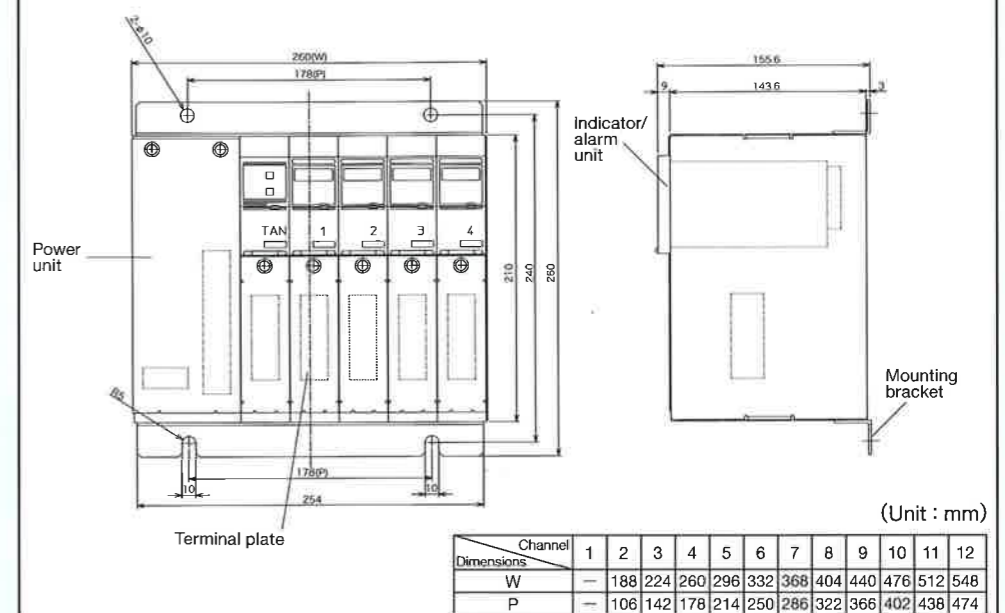
Indicator/alarm unit with single case 590-SRI



Buzzer unit TAN-590 with single case 590-SRT



Multi-unit case -Wall mounting type-



### Gas concentration display

Displays gas concentration on 4-digit digital indicator

### POWER/TROUBLE light

Turns on during normal operation, flashes for trouble

### MODE switch

Maintenance mode switch

### POWER switch

ON/OFF switch for indicator/alarm unit

### PC connection port

To change internal settings with remote PC

### POWER light

Turns on during power on

### BUZZER OFF light

Turns on if buzzer sound is set to OFF

### BUZZER change over switch

To change the buzzer function

Indicator/alarm unit (GP-591)



### ALARM light

Flashes for 2nd alarm, turns on after reset

### WARNING light

Flashes for 1st alarm, turns on after reset

### TEST/SET switch

To test alarm functions

### AL2/▼ switch

To confirm 2nd alarm level

### AL1/▲ switch

To confirm 1st alarm level

Buzzer unit (TAN-590L)



### RESET switch

Alarm reset switch

### BUZZER STOP switch

To stop buzzer sound (used only for locking version)

### POWER switch

ON/OFF switch for buzzer unit

### Disengagement lever

Push lever down to release & pull out module

# BASIC SYSTEM OUTLINE — RM-590 SERIES FOR MULTIPURPOSE GAS DETECTION

COMBUSTIBLE GASES

Catalytic combustion method  
New ceramic method  
(Direct transmission)

Semi-conductor method  
(Direct transmission)

TOXIC GASES

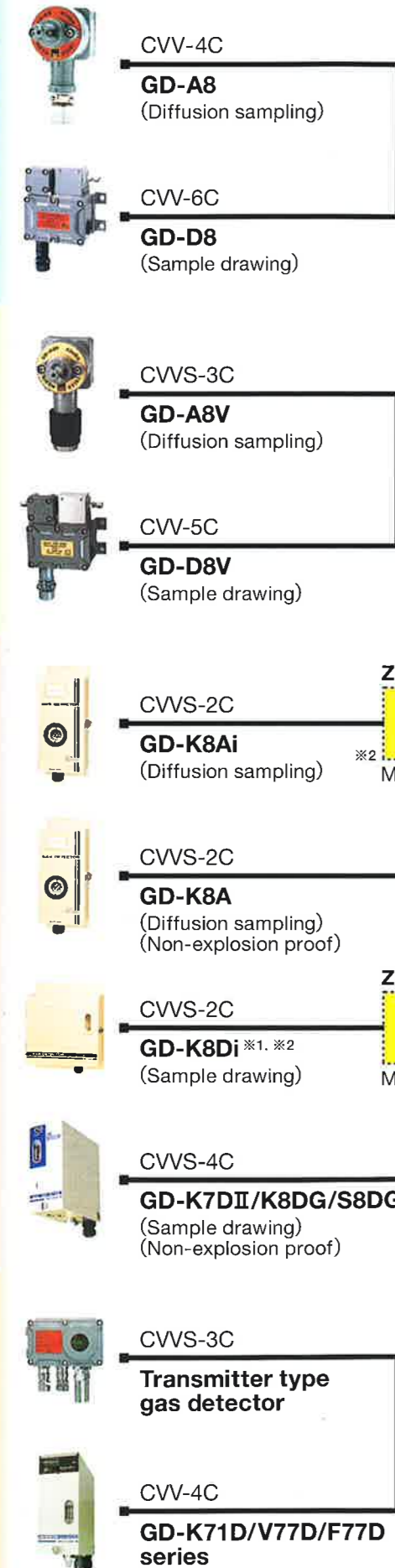
Electrochemical method (4-20mA transmission)

Galvanic cell method (direct transmission)

Galvanic cell method (4-20mA transmission)

OXYGEN

## Detector



## Indicator/alarm unit

**GP-591**  
**NC-591**  
**NC-591W**

※1  
**GH-591**

When an H<sub>2</sub> selective ppm sensor is used, the model GH-591H is applied.

**EC-592**

**RM-593**

max. 1.25km  
(0.77mi)(1.25mm<sup>2</sup>)

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max. 1.25km  
(0.77mi)(1.25mm<sup>2</sup>)

4-20mA/DC24V

Indicator/alarm unit  
RM-590 series  
w/single case 590-SRI



Buzzer unit TAN-590  
w/single case 590-SRT



## Indicator/alarm unit

**OX-591**

max. 600m(1.25mm<sup>2</sup>)  
(1968ft)

**Zener barrier**  
MTL-761/Pac

**CVVS-2C**  
**GD-F3A-1** ※2  
(Diffusion sampling)

**CVVS-2C**  
**GD-F4A-1** ※2. ※3  
(Flow-thru type)

**CVVS-2C**  
**GD-F44**  
(Flameproof)  
(Diffusion sampling)

**OX-592**

max. 1.25km  
(0.77mi)(1.25mm<sup>2</sup>)

**Zener barrier**  
MTL 728ac

**CVVS-2C**  
**GD-F3A-SC-1** ※2  
(Diffusion sampling)

**CVVS-2C**  
**GD-F4A-SC-1** ※2. ※3  
(Flow-thru type)

**RM-592**

max. 1.25km  
(0.77mi)(1.25mm<sup>2</sup>)

**CVVS-2C**

Other informations such as  
current, pressure, temperature

※1. When the GD-K8Di is used in hazardous areas, they require separate flame proof pump.

※2. Intrinsically safe by use of exclusive zener barrier.

※3. When GD-F4A-1/F4A-SC-1 are used in hazardous areas, they require a separate flame proof pump.

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

# Specifications

## Specifications for Indicator/Alarm Unit

Model	GP-591 NC-591 NC-591W*	GH-591	EC-592	OX-591	OX-592	RM-592	RM-593	
Target gas	Combustible gases	Combustible / Toxic gases	Toxic gases	Oxygen		General measuring signals		
Type of acceptable detector head	• Catalytic combustion • New ceramic	• Semiconductor	Electrochemical cell	Galvanic cell		4~20mA outputs 2-wire type   3-wire type		
Measuring range	• 0~100%LEL • 0~5000ppm*	• 0~several hundred or thousand ppm	Depends on gas	0~5, 0~10, 0~25 or 0~50vol%		Depends on connected unit		
Acceptable input signal	Direct sensor signal		4~20mADC output	Direct sensor signal	4~20mADC output			
Display	4-digit digital LED (7 segments), Gas concentration display							
Alarm indication	Flashing LEDs : Orange (AL1), Red (AL2), steady lighting after acknowledgement. Latching or non-latching, Locking mode							
Trouble alarm	Green LED flashing, Non-latching							
Alarm relays	Normally energized or de-energized, Normally-open or close contact, rated 0.5A at 100VAC / 1.5A at 30VDC (resistive)							
Self-diagnostic function	System trouble, connection trouble							
Output signal	4~20mADC, non-isolated sourcing, max loop load 300Ω					4~20mADC, non-isolated sink, max loop load 300Ω		
Operating temperature and humidity	0~40°C, 10~90%R.H. (non-condensing)							
Power requirement	24VDC±10%							
Power consumption	Single case	100~115VAC or 200~240VAC						
	Multi case							
Power consumption	Max 10W (including detector head)	Max 5W (including detector head)	Max 5W (indicator/alarm unit only)					
Dimensions & weight	Approx 36 (W)×72 (H)×134 (D)mm, approx 0.1kg							

\* Dual range of 0~100%LEL/0~5000ppm CH<sub>4</sub>

Specifications subject to change without notice.

## Connectable detector heads

applicable indicator/ alarm unit	GP-591 NC-591 NC-591W*	GH-591	EC-592	OX-591	OX-592	RM-592	RM-593
Intrinsically safe or flame proof design. Diffusion sampling	GD-A8 GD-A8-AS	GD-A8V GD-A8V-AS	GD-K8Ai with zener barrier	GD-F3A-1 with zener barrier GD-F44	GD-F3A-SC-1 with zener barrier		SD-705series SD-805series
Intrinsically safe or flame proof design. Sample drawing	GD-D8 GD-D8AS GD-D8·DC GD-D8NC	GD-D8V GD-D8VAS	GD-K8Di with separate flame proof pump and zener barrier	GD-F4A-1 with separate flame proof pump and zener barrier	GD-F4A-SC-1 with separate flame proof pump and zener barrier		SD-705& SD-805series with separate flame proof pump
Non-explosion proof. Diffusion sampling			GD-K8A			RI-215A	GD-F77A
Non-explosion proof. Sample drawing			GD-K7DII GD-K8DG GD-S8DG		GD-F8D	RI-215D RI-257 FP-260AGZS	GD-K71D GD-77 series

## Specifications for Buzzer Unit

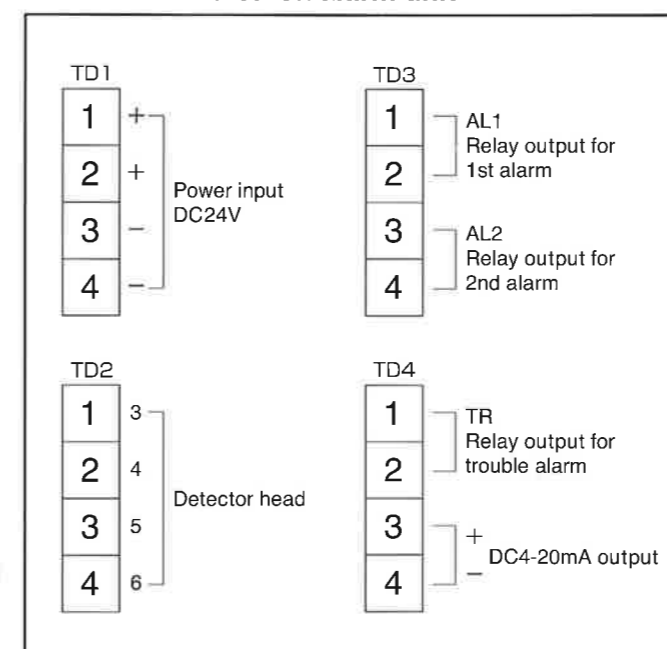
Model	TAN-590	TAN-590L
Common gas alarm	Buzzer sound, latching (released after resetting) or non-latching mode	Buzzer sound, locking mode (buzzer sound stops by BUZZER stop switch)
Common trouble alarm	Non-latching · buzzer sound (released after resetting)	Non-latching · buzzer sound (stops by BUZZER stop switch)
Alarm contact	Normally energized or de-energized, normally-open or normally-close contact, rated 0.5A at 100VAC/1.5V at 30VDC (Resistive)	
Operating temperature and humidity	0~40°C, 10~90%R.H. (non-condensing)	
Power requirement	24VDC±10%, 2W	
Dimensions & weight	Approx 36 (W)×72 (H)×134 (D)mm, 0.1kg	

Specifications subject to change without notice.

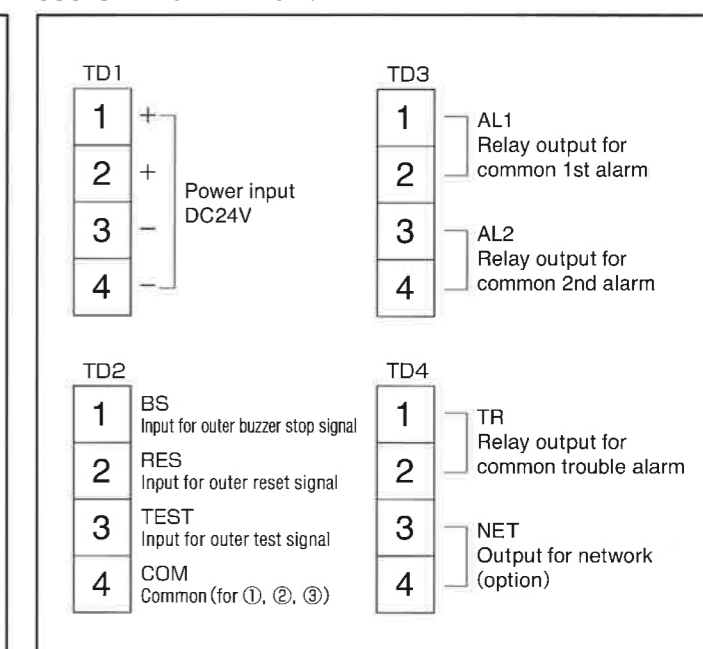
## Wiring Connection

### Terminal Block (single case)

#### 590-SRI for Indicator/Alarm unit

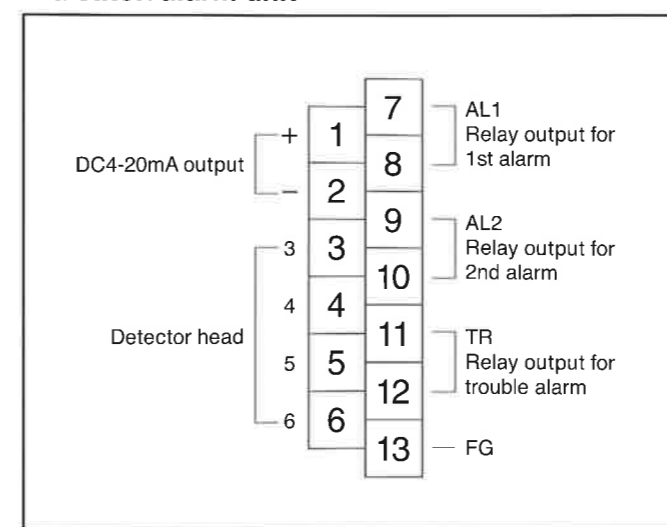


#### 590-SRT for Buzzer unit

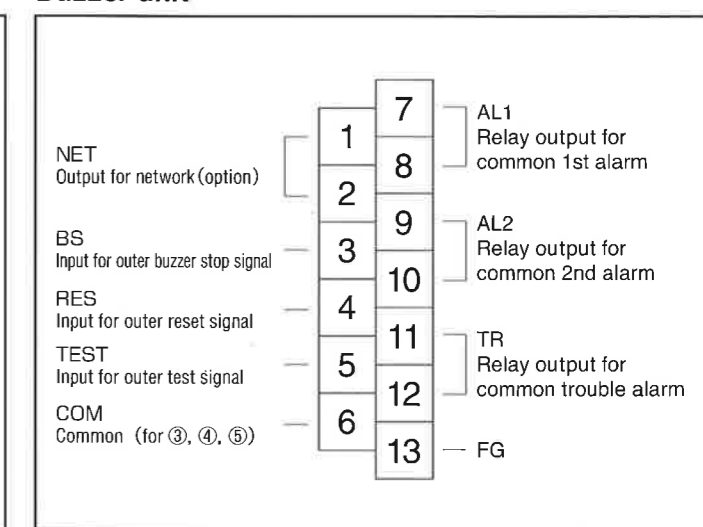


### Terminal Block (Multi-unit case)

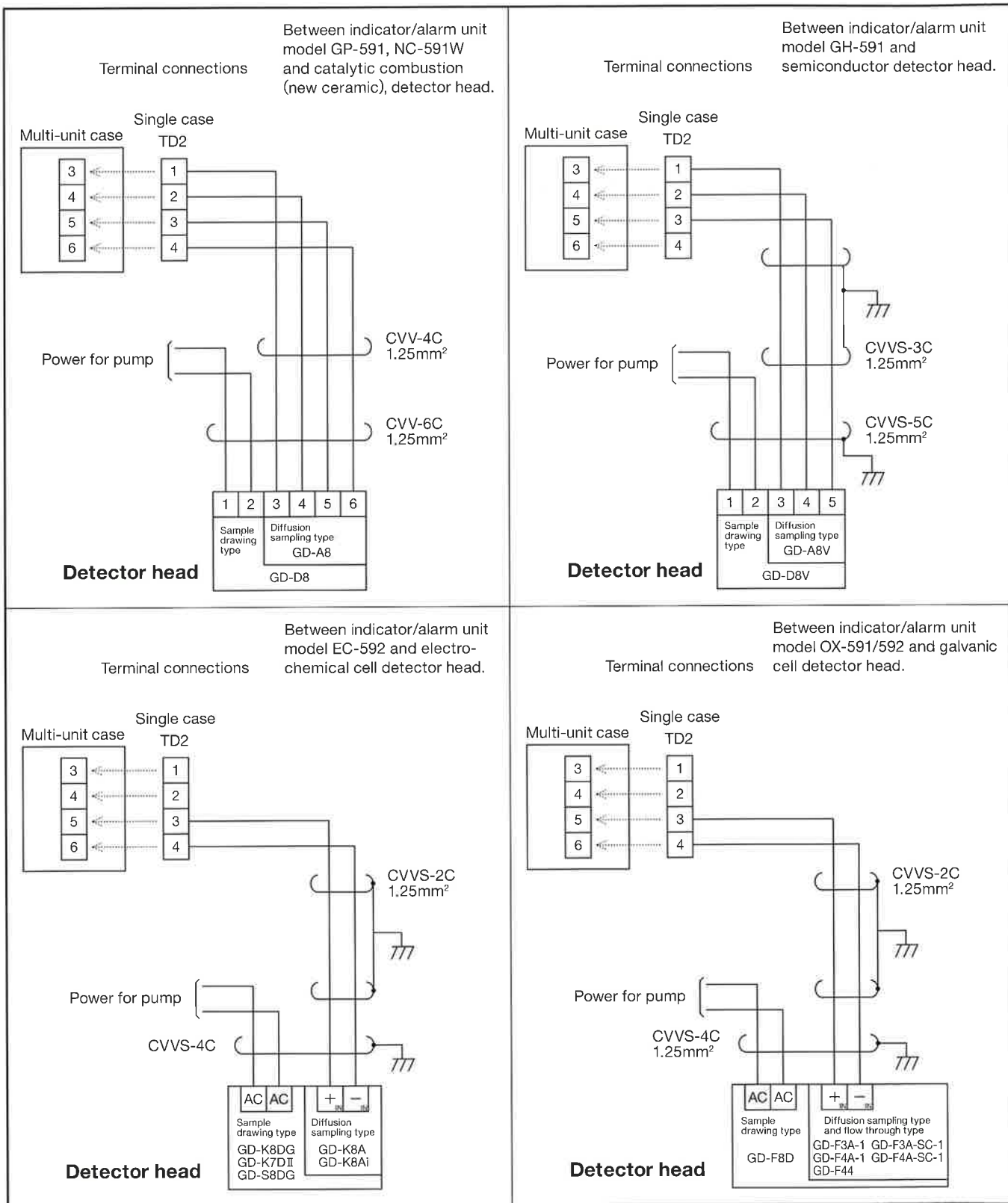
#### Indicator/Alarm unit



#### Buzzer unit



# Wiring Connection



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