

# RIKEN

## SMART TRANSMITTER/GAS DETECTOR

### SD-703 series

For combustible and toxic gases



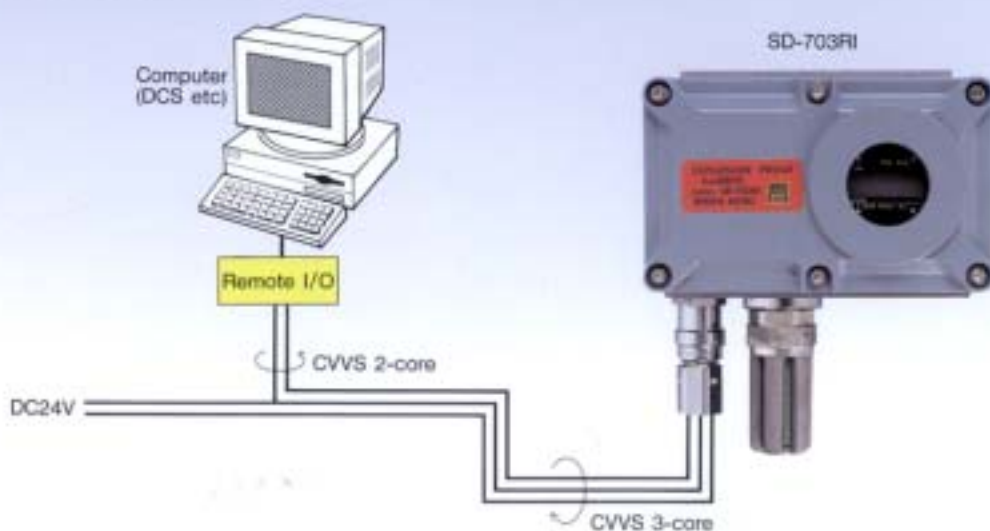
**RIKEN KEIKI**

# SYSTEM APPLICATIONS

## ■ Connection with indicator/alarm unit

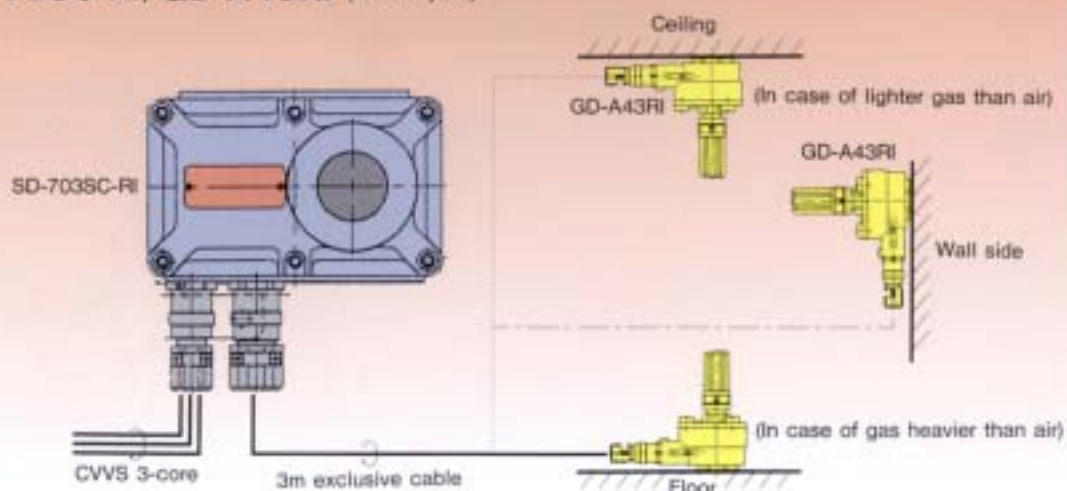


## ■ Connection with DCS



# APPLICATION FOR REMOTE DETECTOR HEAD

## ■ SD-703SC-RI/GD-A43RI (Example)



● Detector should be covered with drip proof cover



## SUMMARY

The Model SD-703 series smart transmitter/detector heads are state of the art instruments housed in a flameproof enclosure. A simple magnetic control key is placed over clear marked positions on the surface plate to test and adjust the instrument without opening the transmitter/detector head. Five different detection principles are provided with SD-703 series which enable you to select the most suitable principle according to the detection gas, range and application for use. Especially, the Model SD-703NCW and SD-703SCW-NC can detect combustible gases with an autoranging capability from ppm to %LEL according to the concentration present.

## FEATURES

- ▶ Small, light weight, explosion proof
- ▶ Simple adjustment with magnetic control key
- ▶ Simple one man calibration
- ▶ Microprocessor controlled
- ▶ Self-diagnostics and auto-zero function
- ▶ Remote sensor available (SD-703SC series)
- ▶ Operational status display
- ▶ Autoranging detection from ppm to %LEL (SD-703NCW, SD-703SCW-NC)
- ▶ 4-20mA linear output

## SPECIFICATIONS

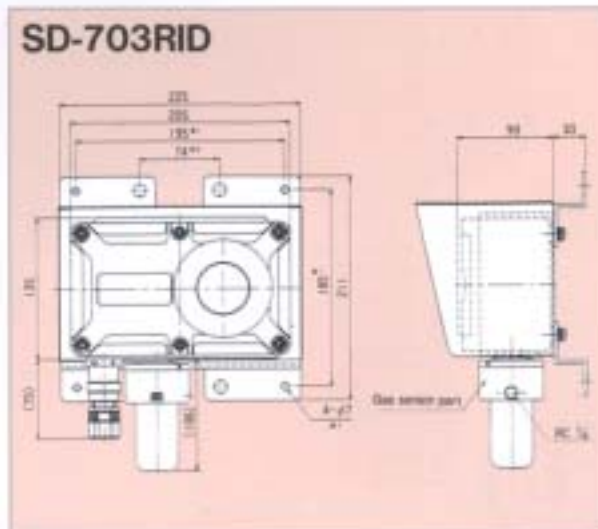
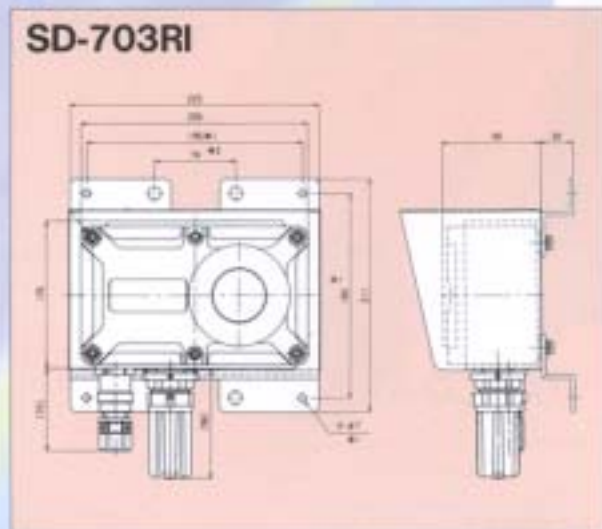
MODEL	SD-703NCW	SD-703SCW-NC (Remote type)
Detection gas	Combustible gas (General combustible gas or Methane)	
Detection principle	Catalytic combustion (New ceramic type)	
Detection range	0-1800ppm/10-100%LEL (i-C <sub>4</sub> H <sub>10</sub> cal), Auto range selection	
Accuracy	Better than ±5% of full scale (±10% of full scale on ppm range on calibrated gas at constant condition)	
Response time T60	Within 30sec	
Operating temperature and humidity	-10°C~+40°C, below 95%R.H. (Non-condensing)	
Output signal	4-20mA ---Output of gas concentration (Resistive load, below 300Ω) 0.5mA-----Malfunction 2.5mA-----Maintenance mode & initial clear 4-16mA ---L-range (ppm range) 16-20mA---H-range (% LEL range) Remarks: Maximum 22mA (with limiter)	
Power requirement	24VDC ±10% (Max 4.5W)	
Structure	Flame proof Exd II BT4 approved by authority of Japan	
Applicable cable	CVVS, 3-Core (Between transmitter and sensor: See application table)	
Signal transmission distance	Between indicator/alarm unit and transmitter; Max 1.25km with CVVS 1.25sq cable Max 2.0km with CVVS 2.0sq cable	
Dimensions & weight	Approx: 205(W)×134(H)×90(D) mm, Approx: 4kg	
Applicable indicator/ alarm unit	NC-573AW or NC-583W	

### Standard accessories

- ① Sun shade cover.....1 pce
- ② Fuse (1A) .....1 pce
- ③ Magnetic control key.....1 pce/order

### Optional accessories

- Box type drip proof cover
- Pole stand
- U-bolt for pole stand mounting
- Calibration kit



#1 Installation dimensions for wall

#2 Installation dimensions for pole stand





## SPECIFICATIONS

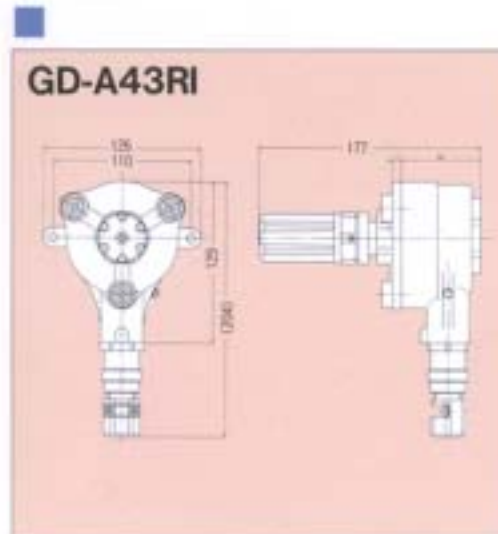
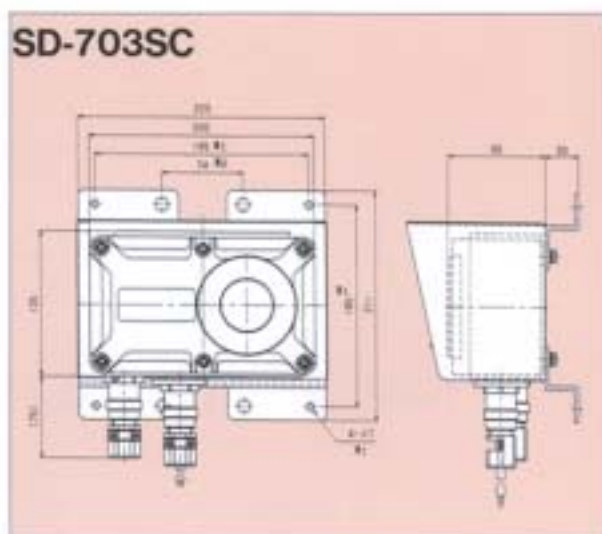
MODEL	SD-703RI	SD-703SC-RI (Remote type)	SD-703RID (Suction type)	SD-703EC
Detection gas	Refer to detection gas list			Carbon monoxide (CO)   Hydrogen sulfide (H <sub>2</sub> S)
Detection principle	Non-Dispersive Infrared Ray Absorption (NDIR)			Electrochemical cell
Detection range	Refer to detector gas list			0~150 ppm   0~30 ppm
Accuracy	Better than ±5% of full scale			Better than ±10% of full scale
Response time T60	Within 30sec, depends on gas			Within 30sec (T90)
Operating temperature and humidity	-10°C~+40°C, below 95%R.H. (Non-condensing)			-10°C~+40°C, below 95%R.H. (Non-condensing)
Output signal	4-20mA ...Output of gas concentration (Resistive load, below 300Ω) 0.5mA.....Malfunction 2.5mA.....Maintenance mode & initial clear  Remarks: Maximum 22mA (with limiter)			4-20mA ...Output of gas concentration (Resistive load, below 300Ω) 0.5mA.....Malfunction 2.5mA.....Maintenance mode & initial clear  Remarks: Maximum 22mA (with limiter)
Power requirement	24VDC ±10% (Max 4W)			24VDC ±10% (Max 2.5W)
Structure	Flame proof Exd II BT4 approved by authority of Japan			Flame proof Exd II BT4 approved by authority of Japan
Applicable cable	CVVS, 3-Core (Between transmitter and sensor: See application table)			CVVS, 3-Core (Between transmitter and sensor: See application table)
Signal transmission distance	Between indicator/alarm unit and transmitter; Max 1.25km with CVVS 1.25sq cable Max 2.0km with CVVS 2.0sq cable			Between indicator/alarm unit and transmitter; Max 1.25km with CVVS 1.25sq cable Max 2.0km with CVVS 2.0sq cable
Dimensions & weight	Approx: 205(W)×134(H)×90(D) mm, SD-703RI/SD-703SC-RI Approx: 4.3kg SD-703RID Approx: 6.5kg			Approx: 205(W)×134(H)×90(D) mm, Approx: 4kg
Applicable indicator/ alarm unit	RI-573A or RI-583			EC-573A or EC-583

### Standard accessories

- ① Sun shade cover.....1 pce
- ② Fuse (1A) .....1 pce
- ③ Magnetic control key.....1 pce/order

### Optional accessories

- Box type drip proof cover
- Pole stand
- U-bolt for pole stand mounting
- Calibration kit





# DETECTION GAS

## ■ BY SD-703GH/SD-703SC-GH

Detection gas	Lower Explosive Limit (LEL)	Detection range	
		Lowest F.S.	Highest F.S.
Methane CH <sub>4</sub>	5.0 VOL%	2000ppm	5 VOL%
iso-Butane i-C <sub>4</sub> H <sub>10</sub>	1.8 VOL%	500ppm	5000ppm
Gasoline	1.0 VOL%	100ppm	5000ppm
Hydrogen H <sub>2</sub>	4.0 VOL%	100ppm	1 VOL%
Benzene C <sub>6</sub> H <sub>6</sub>	1.2 VOL%	200ppm	2000ppm
Toluene C <sub>7</sub> H <sub>8</sub>	1.2 VOL%	300ppm	3000ppm
MEK C <sub>4</sub> H <sub>8</sub> O	1.8 VOL%	30ppm	2000ppm
IPA C <sub>3</sub> H <sub>8</sub> O	2.0 VOL%	300ppm	5000ppm
Xylene C <sub>8</sub> H <sub>10</sub>	1.0 VOL%	100ppm	1000ppm

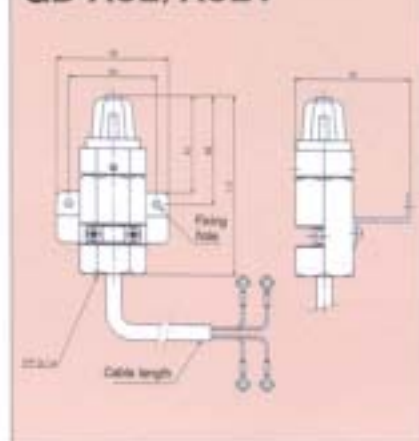
## ■ BY SD-703RI/SD-703SC-RI

Detection gas	Lower Explosive Limit (LEL)	Detection range	Resolution (digit)
Methane CH <sub>4</sub>	5.0 VOL%	0~100%LEL	0.5%LEL
Ethylene C <sub>2</sub> H <sub>4</sub>	2.7 VOL%	0~100%LEL	0.5%LEL
Ethane C <sub>2</sub> H <sub>6</sub>	3.0 VOL%	0~100%LEL	0.5%LEL
Propane C <sub>3</sub> H <sub>8</sub>	2.0 VOL%	0~100%LEL	0.5%LEL
iso-Butane i-C <sub>4</sub> H <sub>10</sub>	1.8 VOL%	0~100%LEL	0.5%LEL
n-Hexane n-C <sub>6</sub> H <sub>14</sub>	1.2 VOL%	0~100%LEL	0.5%LEL
IPA C <sub>3</sub> H <sub>8</sub> O	2.0 VOL%	0~100%LEL	0.5%LEL
Toluene C <sub>7</sub> H <sub>8</sub>	1.2 VOL%	0~100%LEL	0.5%LEL
MEK C <sub>4</sub> H <sub>8</sub> O	1.8 VOL%	0~100%LEL	0.5%LEL
Ethyl alcohol C <sub>2</sub> H <sub>5</sub> OH	3.3 VOL%	0~100%LEL	0.5%LEL

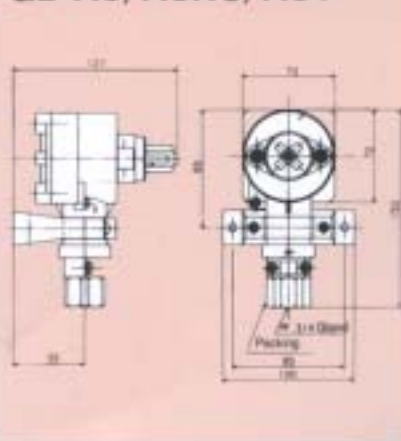
## ■ Distance between transmitter and detector head

Transmitter	Detector head	Distance
SD-703SC-GP	GD-A52	5m by exclusive cable
	GD-A8	Max. 10m by CVV, 4-core cable
SD-703SCW-NC SD-703SC-NC	GD-A52NC	5m by exclusive cable
	GD-A8NC	Max. 10m by CVV, 4-core cable
SD-703SC-GH	GD-A52V	5m by exclusive cable
	GD-A8V	Max. 10m by CVVS, 3-core cable
SD-703SC-RI	GD-A43RI	3m by exclusive cable

GD-A52/A52V

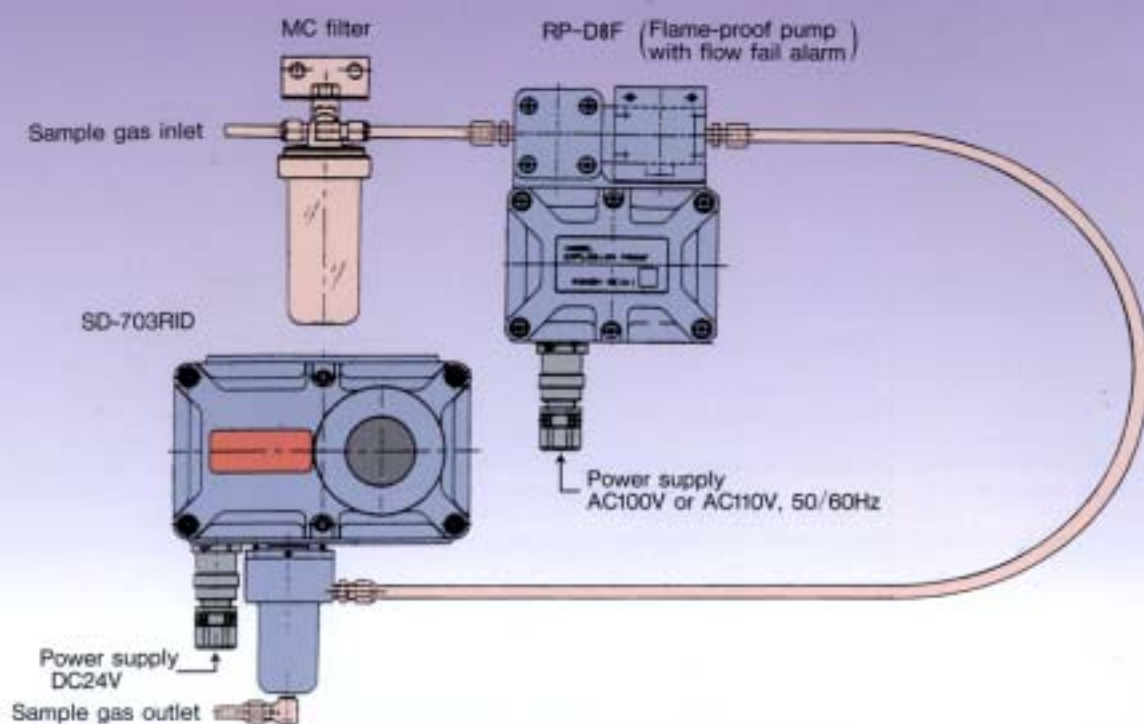


GD-A8/A8NC/A8V

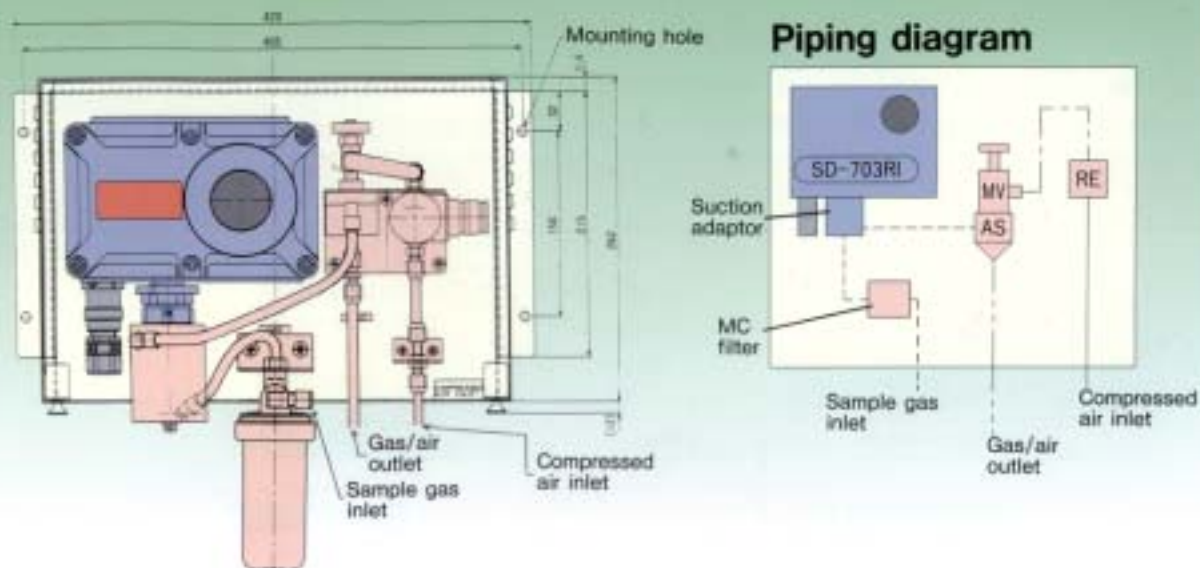


# SAMPLE DRAWING APPLICATION

## SD-703RID/RP-D8F



## SD-703RI-AS (Air aspiration type)



A9812



ISO 9001:2000

★ Distributed by: