

# EXPLOSION PROOF TRANSMITTER



## Features

- **Wide range of detectable gases**
  - % LEL Combustibles, catalytic
  - % LEL Combustibles, IR
  - H<sub>2</sub>S, CO, & O<sub>2</sub>
  - PPM for acrylonitrile, hydrogen, ethylene oxide, n-methyl pyrrolidone, methylene chloride, and many others
- **Sensor types include**
  - Catalytic, Galvanic Cell, MOS, IR, & Electrochemical
- **Direct digital display of gas readings**
- **HART Communication protocol or 4-20 linear output**
- **Available with SIL2 approval (IR, EC, OX versions)**
- **Easy maintenance using a magnetic key**
- **Self-diagnosis by microprocessor**
- **Low power operation (Maximum: 3W)**
- **Explosion proof: ATEX, IECEx, ExdIICT5**

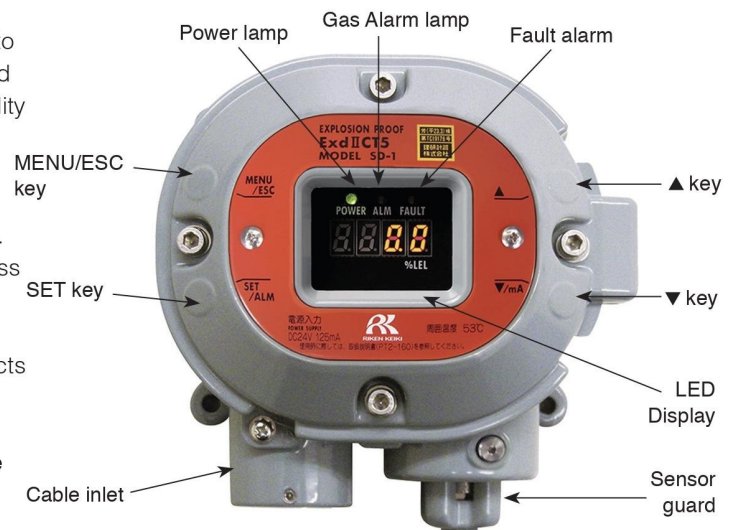
## Applications






- LNG Terminal
- Petrochemical/Chemical plants
- Power plant
- Utilities
- Iron and steel works



RKI Instrument's model SD-1 Series smart combustible gas, toxic gas, oxygen, and organic vapor detector/transmitter is a robust and reliable explosion proof design for detecting LEL and ppm levels of hazardous atmospheres. In addition to measuring the common %LEL levels of methane, hexane and isobutane, for example, the SD-1 Series also has the capability of measuring a wide variety of toxic organic compounds in a PPM range such as acrylonitrile, ethylene oxide, n-methyl pyrrolidone, methylene chloride and many others. This gives the SD-1 Series a unique niche in RKI's gas detector line-up. The SD-1 has an ATEX/IECEX approval for the explosion class ExdIICT5 and has an IP-65/67 ingress protection rating.

The SD-1 has a 4-20mA signal output as well as relay contacts for interfacing with other control systems or monitoring facilities. **All SD-1 types are also available with HART communication instead of 4-20mA relay. SIL2 is available for the IR, EC and OX types.** In facilitating non-intrusive conditions in hazardous atmospheres, the SD-1 can be calibrated and its menus navigated with magnetic switches and a magnetic key.



Model	SD-1GP 	SD-1RI 	SD-1GH 	SD-1EC 	SD-1OX 
Detection principle	Catalytic	Infrared	Semiconductor	Electrochemical	Galvanic Cell
Measuring gas	Variety of hydrocarbons		See chart below	CO/H <sub>2</sub> S	Oxygen
Measuring range	0 - 100% LEL			CO: 0-75ppm H <sub>2</sub> S: 0-30ppm	0 - 25 vol%
Alarm setting	2 programmable alarm set points/increasing/decreasing/latching/ self resetting/on delays/off delays/energized/de-energized				
Alarm contacts	Normally open or normally closed				
Sampling method	Diffusion (Flow adapter and air aspiration available)				
Display	4 digit Digital LED				
Output	4-20 mA or HART (optional without 4-20 mA)				
Relay	1 Relay with 4-20 mA versions or No relay with HART versions				
Contact capacity	30 VDC 0.5A or 120 VAC 0.5A (load resistance)				
Fail alert Self diagnosis	Circuit failure / Sensor failure				
Fail alert display	Fail lamp (Yellow)				
Power source	24VDC (17VDC ~ 26.4VDC)				
Operating Temperature & humidity	-4 ~ + 140°F / below 95% RH (non condensing) [-20 ~ + 60°C], (SD-1EC Below 80% RH)				
Dimension & Weight	5.8"(W) x 6.3"(H) x 3.5" (D) , Approx. 4.4 lbs [148(W) x 161(H) x 88(D) mm, Approx. 2.0kg]				
Approvals	Exd II CT5,ATEX ** <small>**Applied to SD-1GP for H<sub>2</sub>, CH<sub>4</sub>, i-C<sub>4</sub>H<sub>10</sub>, C<sub>3</sub>H<sub>8</sub></small> IECEX EN60079-29-1	CML 15ATEX1034 IECEX, SIL2	Exd II CT5,ATEX, IECEX	DEKRA 13ATEX0035 IECEX DEK 13.0024X, SIL2	

### SD-1GH Detectable Gases & Measuring Ranges

Detection Gas	Formula	Full Scale Ranges		TLV-TWA (ppm)	LEL	Detection Gas	Formula	Full Scale Ranges		TLV-TWA (ppm)	LEL
		Low (ppm)	High (ppm)					Low (ppm)	High (ppm)		
Acetic acid	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	500	3000	10	4.0	R-12	CHClF <sub>2</sub>	300	5000	1000	-
Acetone	C <sub>3</sub> H <sub>6</sub> O	100	10000	500	2.15	Hydrogen	H <sub>2</sub>	200	10000	-	4.0
Acetylene	C <sub>2</sub> H <sub>2</sub>	200	3000	-	1.5	Hydrogen Specific	H <sub>2</sub>	200	2000	-	4.0
Acrylonitrile	C <sub>3</sub> H <sub>3</sub> N	500	1000	2	2.8	Hydrogen sulfide	H <sub>2</sub> S	20	100	1	-
Ammonia	NH <sub>3</sub>	500	1000	25	15	Isopropyl alcohol	C <sub>3</sub> H <sub>8</sub> O	300	5000	200	2.0
Benzene	C <sub>6</sub> H <sub>6</sub>	200	2000	0.5	1.2	Methane	CH <sub>4</sub>	2000	100%LEL	-	5.0(CH <sub>4</sub> )
Buthylacetate	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	100	5000	150	1.4	Propane	C <sub>3</sub> H <sub>8</sub>	2000	100%LEL	-	2.0(C <sub>3</sub> H <sub>8</sub> )
Buthylacrylate	C <sub>7</sub> H <sub>12</sub> O <sub>2</sub>	50	1000	2	1.5	Methyl alcohol	CH <sub>3</sub> OH	100	5000	200	5.5
n-Buthyl alcohol	C <sub>4</sub> H <sub>10</sub> O	100	5000	400	1.4	Methyl bromide	CH <sub>3</sub> Br	200	1000	5	8.6
Chloroform	CHCl <sub>3</sub>	200	5000	10	-	Methyl ethyl ketone	C <sub>4</sub> H <sub>8</sub> O	30	5000	200	1.8
Cyclohexane	C <sub>6</sub> H <sub>12</sub>	200	5000	100	1.3	Methyl isobutyl ketone	C <sub>6</sub> H <sub>12</sub> O	50	500	50	1.2
Cyclohexanone	C <sub>6</sub> H <sub>10</sub> O	50	1000	20	1.1	Methylene chloride	CH <sub>2</sub> Cl <sub>2</sub>	500	5000	50	13.0
2-ethoxyethyl acetate	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	100	3000	5	1.7	n-Hexane	n-C <sub>6</sub> H <sub>14</sub>	100	5000	50	1.2
Ethyl acetate	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	100	5000	20	2.1	Tetrahydrofuran	C <sub>4</sub> H <sub>8</sub> O	20	3000	100	1.2
Ethyl alcohol	C <sub>2</sub> H <sub>5</sub> OH	100	5000	1000	3.3	Toluene	C <sub>7</sub> H <sub>8</sub>	20	3000	100	1.2
Ethylene	C <sub>2</sub> H <sub>4</sub>	200	5000	200	2.7	Trichloroethylene	C <sub>2</sub> HCl <sub>3</sub>	300	5000	50	7.9
Ethylene oxide	C <sub>2</sub> H <sub>4</sub> O	100	1000	1	3.0	Vinyl chloride	C <sub>2</sub> H <sub>3</sub> Cl	200	3000	5	3.8
R-11	CCl <sub>3</sub> F	2000	5000	1000	-	Xylene	C <sub>8</sub> H <sub>10</sub>	100	2000	100	1.0

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