

EXPLOSION PROOF TRANSMITTER

Gas Detection For Life

MODEL SD-1 SERIES



Features

- **Wide range of detectable gases**
 - % LEL Combustibles, catalytic
 - % LEL Combustibles, IR
 - H₂S, CO, & O₂
 - 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**

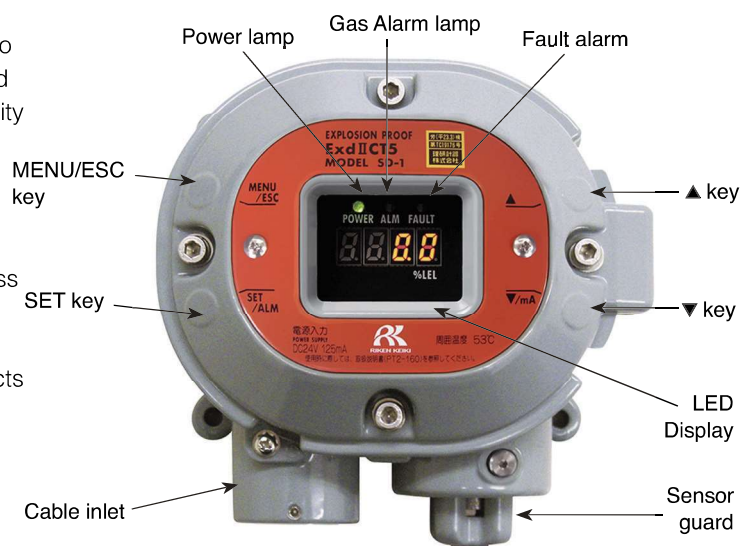
Applications

- **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 it's menus navigated with magnetic switches and a magnetic key.



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World Leader In Gas Detection & Sensor Technology
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MODEL SD-1 SERIES

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/H2S	Oxygen
Measuring range	0 -100% LEL			CO: 0-75ppm H2S: 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 <small>**Applied to SD-1GP for H2, CH4, i-C4H10, C3H8</small>	Exd II CT5,ATEX ** IECEx EN60079-29-1	CML 15ATEX1034 IECEX, SIL2	Exd II CT5,ATEX, IECEx	DEKRA 13ATEX0035 IECEx DEK 13.0024X, SIL2	

** Applied to SD-1GP for H₂, CH₄, i-C₄H₁₀, C₃H₈

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

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