



Warsaw

GAS DETECTORS/ 4-20mA TRANSMITTERS

DG/P

 models: **DG-P_nE/N,**
DG-P_nR/N

series W1

where "n" is a natural number coding gas name

INTENDED USE

Detector **DG/P** can be used for continuous monitoring of premises for combustible and toxic gases. Process of monitoring is based on on-line measurement of gas concentration in the air and transmitting measured value as 4-20mA standard (*passive output*).

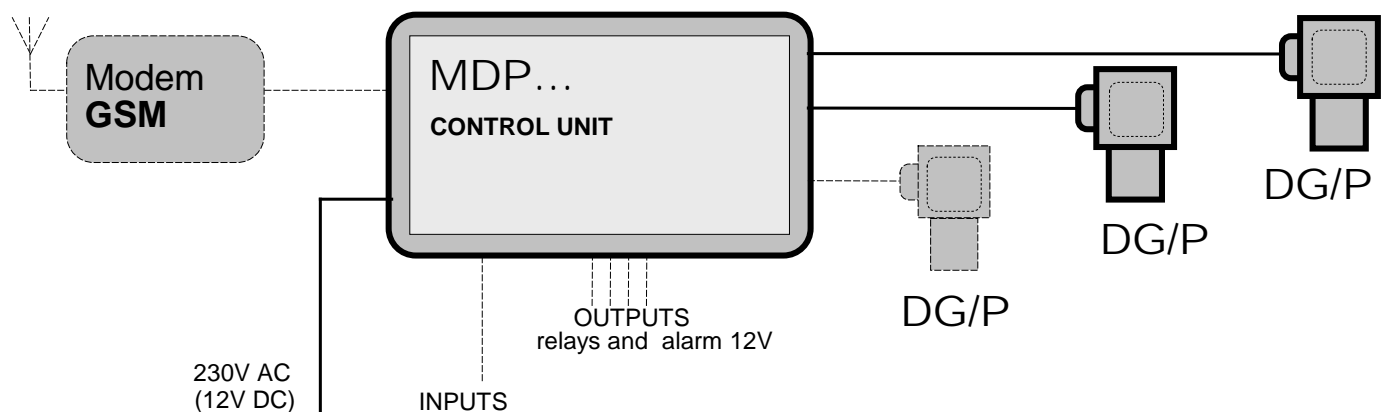
For use with control units from other manufacturers - GAZEX recommend to use detectors type DG/PV with dual outputs (active 4-20mA and 2-10V).



OPERATIONAL FEATURES

- 4-20mA standard analog output (passive)
- easily exchangeable sensor unit and easy maintenance
- easy change the gas detected or calibration of the detector
- built-in temperature compensation
- infra-red sensor for combustible gases or electrochemical sensor for toxic gases or oxygen
- sensor unit with "zero" and "span" regulation (calibration outside the detector)
- low-cost operation

DRAWING OF TYPICAL SYSTEM CONFIGURATION



PRODUCER:

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SELECTION TABLES

Detectors **DG-PnE/N** with intelligent electrochemical sensors:

TABLE 1.DGP.nE

SYMBOL		Concentration RANGE							calibration period		Lifetime in clean air [years]
MODEL	Sensor module MS-P...	gas	Selectivity **	range*	resolution	max overload (<1min / 8h)	STANDARD CALIBRATION GAS *	unit	max [months]	optimum [months]	
1	3	4	5	6	7	8	8A	9	10	11	12***
DG-P2E/N	2E/N	Carbon monoxide	SLK	0 ÷ 500	5	1500	200,CO	ppm	12	6	2
DG-P4E/N1	4E/N1	Ammonia (from -40°C)	SLK	0 ÷ 100	1	200	30, NH3	ppm	6	3	2
DG-P4E/N2	4E/N2	Ammonia	SLK	0 ÷ 100	1	200	30, NH3	ppm	6	3	2
DG-P5E/N	5EN	Hydrogen sulfide	SLK	0 ÷ 100	1	500	20, H2S	ppm	6	3	2
DG-P7E/N	7E/N	Hydrogen	SLK	0 ÷ 1000	10	2000	x	ppm	6	3	2
DG-P9E/N	9E/N	Oxygen	SLK	0 ÷ 25	0,2	30	20,9; O2	% v/v	24	12	2
<i>DG-P0E.SO2/N</i>	SO2/N	Sulphur dioxide	SLK	0 ÷ 20	1	150	x	ppm	6	3	2
<i>DG-P0E.NO/N</i>	NO/N	Nitric oxide	SLK	0 ÷ 100	1	500	x	ppm	6	3	2
<i>DG-P0E.NO2/N</i>	NO2/N	Nitrogen dioxide	SLK	0 ÷ 20	1	150	x	ppm	6	3	2
<i>DG-P0E.CL2/N</i>	CL2/N	Chlorine	SLK	0 ÷ 10	0,5	50	x	ppm	6	3	2
<i>DG-P0E.ETO/N</i>	ETO/N	Ethylene oxide	SLK	0 ÷ 20	0,5	50	s	ppm	6	3	2
<i>DG-P0E.PH3/N</i>	PH3/N	Phosphine	SLK	0 ÷ 5	0,1	20	s	ppm	6	3	2
<i>DG-P0E.HCL/N</i>	HCL/N	Hydrogen chloride	SLK	0 ÷ 30	1	50	s	ppm	6	3	2
<i>DG-P0E.HCN/N</i>	HCN/N	Hydrogen cyanide	SLK	0 ÷ 30	1	50	s	ppm	3	3	1,5
<i>DG-P0E.THT/N</i>	THT/N	Tetrahydro-tiophene	SLK	0 ÷ 20	1	30	5, THT	ppm	3	3	1,5
<i>DG-P0E.CLO2/N</i>	CLO2/N	Chlorine dioxide	SLK	0 ÷ 1	0,05	3	s	ppm	6	3	2

Italics and red color indicates custom models, with parameters matched to the application

*) - other gases (*Ozone, Hydrazine, Silane, Arsine, Diborane, Phosgene etc.*), other ranges or calibration on request

**) - cross-sensitivity data for electrochemical sensors are available on request (SLK)

***) - depending of gas concentration "history" around the sensor unit

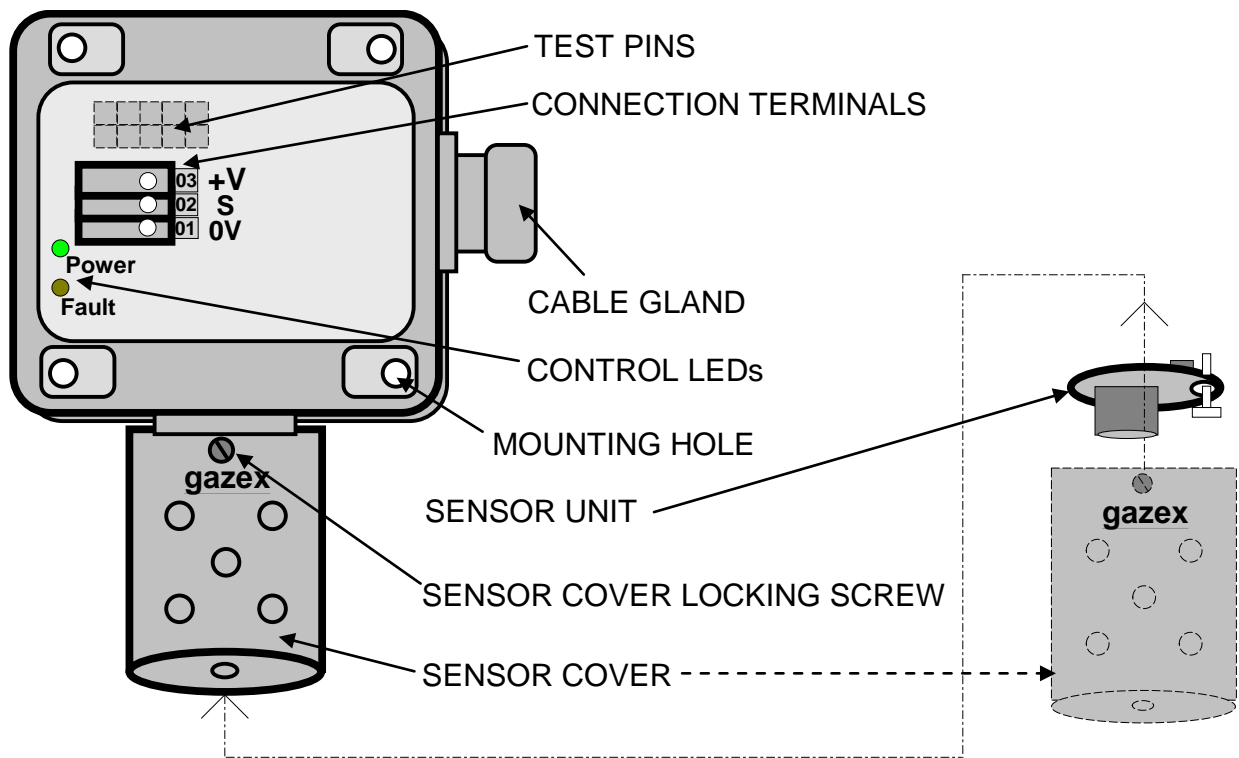
TABLE 1.PnR. Detectors **DG-PnR/N** with intelligent Infra-Red sensor:

SYMBOL		Concentration RANGE							calibration period		Lifetime in clean air [years]
MODEL	sensor module MS...	gas	Selectivity**	range*	resolution	max overload (<1min / 8h)	STANDARD CALIBRATION GAS *	unit	max [months]	optimum [months]	
1	3	4	5	6	7	8	8A	9	10	11	12
DG-P1R2/N	P1R2/N	Methane	SL	0 ÷ 100	1	no limits	50, Methane	% LEL	36	12	>5
DG-P1R5/N	P1R5/N	LPG	SL	0 ÷ 100	1	no limits	50, Propane	% LEL	36	12	>5
DG-P3R/N	P3R/N	solvents	SL	0 ÷ 100	1	no limits	x	% LEL	36	12	>5
DG-P8R/N	P8R/N	CO2	SL	0 ÷ 5	0,05	100	x	%v/v	36	12	>5
DG-P8R8/N	P8R8/N	CO2	SL	0 ÷ 2	0,02	100	x	%v/v	36	12	15

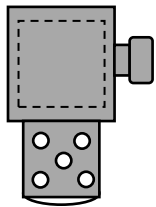
*) - other ranges on request

**) - cross-sensitivity data for Infra-Red sensors are available on request (SL = factors on request)

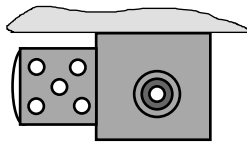
DETECTORS ELEMENTS



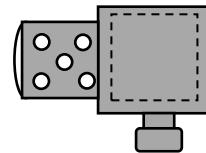
INSTALLATION POSITION



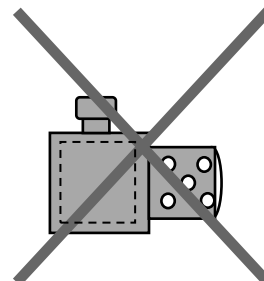
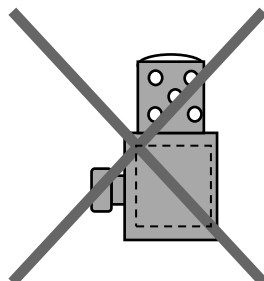
recommended – vertically



allowed – horizontally



NOT ALLOWED:



TECHNICAL SPECIFICATIONS

COMMON SPECIFICATIONS for all models **TABLE 2.1.**

Supply voltage	9 VDC nominal, range: 6.0 ÷ 15.0 VDC [option for DG-PnE/N: 24 VDC(15÷30V)]
Supply current	models DG-PnE/N typical: 30 mA@12V [30 mA@24V] models DG-PnR/N typical: 90 mA
Gas sensor	models DG-PnE/N – electrochemical type, models DG-PnR/N – Infra-Red type; all models with exchangeable sensor unit
Detected gases	see Table 1...
Signal outputs	pin „S” = 4-20 mA (passive, U _o ≤ 10V)
Signaling	optical, 2x LED (power, fault)
Electronic circuit	SMT, with over range control (I _s >25 mA), fault state control (I _s <2 mA)
Dimensions	140 x 110 x 55 mm (H x W x T) – in installation position
Casing, weight	ABS + PC, IP54/IP44 (body/sensor); 0.3 kg

TABLE 2.1.PnE. Selected specifications for models **DG-PnE/N**

Operating temperature	for DG-P2E/N, -P5E/N, -P9E/N, -P4E/N2: -20°C...+40°C recommended, for DG-P4E/N1: -40°C ...+40°C recommended; all models: -25°C ...+50°C allowed periodically (<1h/12h); 35 ...90% RH (non-condensing)
Interfering gases	list on request; oxygen deficiency (<0,5% vol.); fast humidity rise
Poisoning	overload, see Table 1.PnE column 8
Response time	t ₉₀ = ~ 30sec. for DG-P9E/N; t ₉₀ = 30 ÷ 90 sec. for DG-P2E/N , -P5E/N, -P7E/N, t ₉₀ = 90 ÷ 120 sec. for DG-P4E/N...; full spec. time after supply start ~ 5 min.
Accuracy	± 10% of measured value but not less than ± 2% of range; at calibration conditions: 20(-2/+5)°C, 65(±10)% RH, 1013(±30)hPa minimum 72h non-interrupt power supply
Long term drift	~ 3% signal loss/ month; < ±5% / 2 years for -P9E/N, < ±5% / year for -P2E/N; environment dependent

TABLE 2.1.PnR. Selected specifications for models **DG-PnR/N**

Operating temperature	-30°C ...+45°C recommended, -40°C ...+50°C allowed periodically (<1h/12h), (for DG-P8R8/N: recommended -20°C ...+45°C; allowed periodically -25°C ...+50°C); 0...90% RH (non-condensing)
Response gases	Hydrocarbons; for DG-P8R/N: CO ₂ (only)
Low response gases (except model -P8R...)	Methanol, Cyclohexanol, Cresol, Acetic acid, Chloromethane, Benzotrifluoride, Acetaldehyde, Cyclohexanone, Methyl formate, Chloromethane, Allyl Chloride, Chloroethylene, Dichloromethane, Chloroethanol, Acetyl chloride, Chloroethanol, THT, Acetonitrile, Methylamine, Ethylene, Cyclopropane, Ethylene oxide, Furan, Nitromethane
No response gases	Hydrogen, Acetylene, Carbon Monoxide, Phenol, Dichloroethylene, Ammonia, Dichlorobenzene, Aniline, Acrylonitrile, Hydrogen cyanide, Carbon disulfide
Durability influences	vibrations, strong mechanical shock, highly dusty atmosphere
Response time	t ₉₀ = 40 ÷ 120 s; full specification time after power supply start ~ 15 min.
Accuracy	± 10% of measured value but ≥ ±2% of range, at calibration conditions: 20(-2/+5)°C, 65(±10)% RH, 1013(±30)hPa minimum 72h non-interrupt power supply
Thermal stability	± 15 % at temp. range 0°C ...+40°C
Long term drift	< ±2% LEL/month; (model ...P8R...: <0,05%v/v /month); ≤ ±5% LEL/year (model ...P8R...: <0,10%v/v /year)

where “n” is a natural number coding gas name