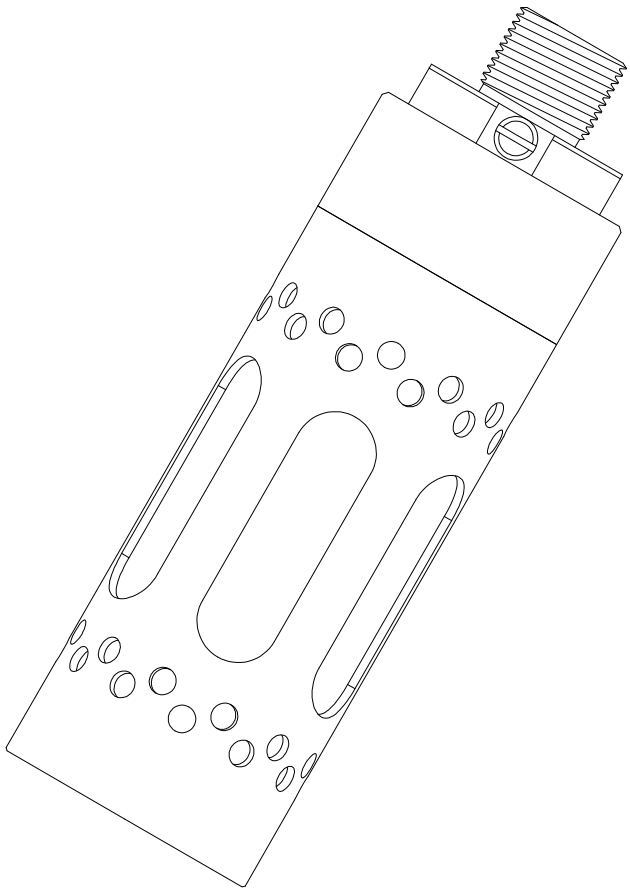
Design, Development, Manufacture, Installation and Servicing for Gas-Leak Alarm

GASTECH AUSTRALIA

Human Technology & Future

INSTRUCTION MANUAL

MODEL : B-Guard



For proper use, please read this manual carefully!

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1. INTRODUCTION

Infrared type gas detector B-GUARD was developed to prevent unfortunate accidents by detecting combustible and Carbon dioxide gas leakage in hazardous places such as plants, gas storages, and factories during manufacture or use of the gases.
B-GUARD operates under DC 24V supplying and sends send 4-20mA output signal
Moreover, for DC 4-20mA standard output, output receiving part can be located up to 1,000 m from sensor part when using CVVS or CVVSB 2.0sq Shield Cable).

2. STRUCTURE

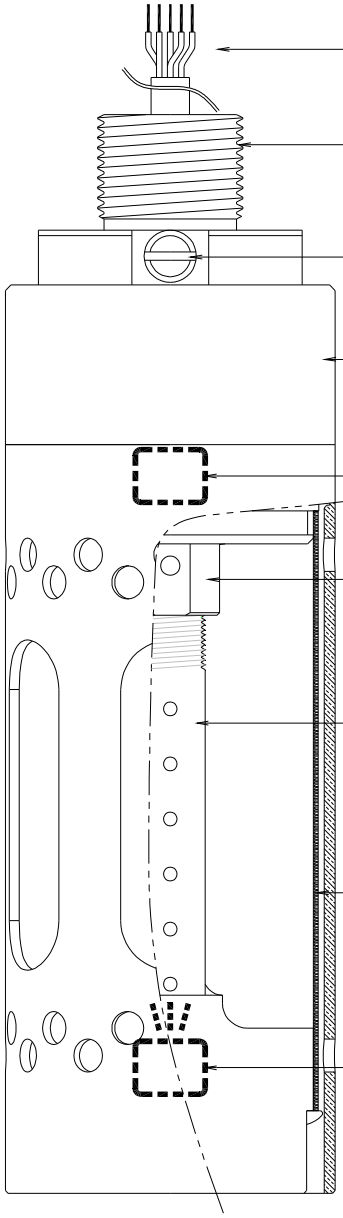
This product can be installed in every hazardous area with danger of gas leakage and explosion. The Body of B-GUARD is made of STAINLESSS STEEL, which gives perfect explosion proof structure to it. (Ex d IIC T6). The internal structure is composed of PCB (transmitter) having terminal parts for delivering measured value (DC4~20mA) and external structure is composed of sensing part for detecting gas leakage and cable inlets. The transmitter of the detection internal part is able to supply with stable power to make the sensor life time is long. The measuring signal output is DC 4-20mA and this is possible to be long distance transmittal.

3. SPECIFICATIONS

NO	I T E M S	S P E C I F I C A T I O N
1	Measuring Type	Diffusion Type
2	Approval	Ex d IIC T6 IP65
3	Detectible Gas	Combustible Gas, CO2
4	Measuring Method	NDIR Cell
5	Measuring Range	Combustible : 0~10,000ppm & 0~100%LEL CO2 : 0~5%
6	Response Time	90% of full scale in less than 10 sec
7	Accuracy	±3% / Full scale
8	Zero Drift	Less than 2% full scale
9	Operation Temp.	-20 to 60℃
10	Operation Humidity	5 to 99% RH (Non-condensing)
11	Measuring Signal Output	4 – 20mA.DC / Full Scale
12	Telemetering Line Length	Max. 1000m : 4~20mA Signal (2.0sq Shield Cable)
13	Power Supply	18 ~ 31V DC (DC 24V Normal) / 300mA Max.
14	Conduct Connection	3/4" G(PF), R(PT), NPT (standard :G3/4")
15	Signal Cable Connection	power+signal: CVVS or CVVSB 2.0sq↑ ×3wires Shield
16	Dimensions	60(W) x 60(H) x 196(D) (mm)
17	Weight	App. 1.5kg

※ The telemetering length is subject to be changed up to a filed condition and wiring type.

4. PART NAME AND MAIN FUNCTIONS



Power & Signal Cable
It is composed with DC24V Power input and 4~20mA analogue output, data cable

Detector fixed screw (Standard G3/4")
G3/4": Parallel pipe thread ISO 228/1 (PF3/4": KS B 0221)
R3/4": Taper pipe thread ISO 7/1 (PT3/4" KS B 0222)

Earth Ground
This grounding terminal protects detector from external noises or high voltage.
The ground shoud be more than 4sq

Detector Material
Stainless steel material and explosion proof structure

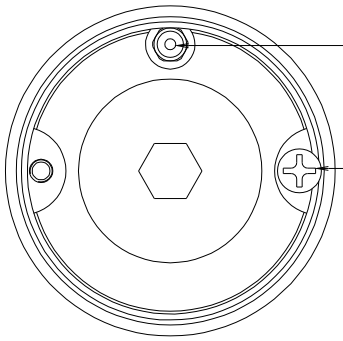
IR Sensor(Receiver)
It is a dual channel type and covers IR spectrum to electric signal

IR Tube Lock
This is for fixing IR Tube

IR Tube
This is to minimize IR spectrum from IR source be dispersed to outside.

Filter (Option)
Stainless Mesh-Plain weave filter

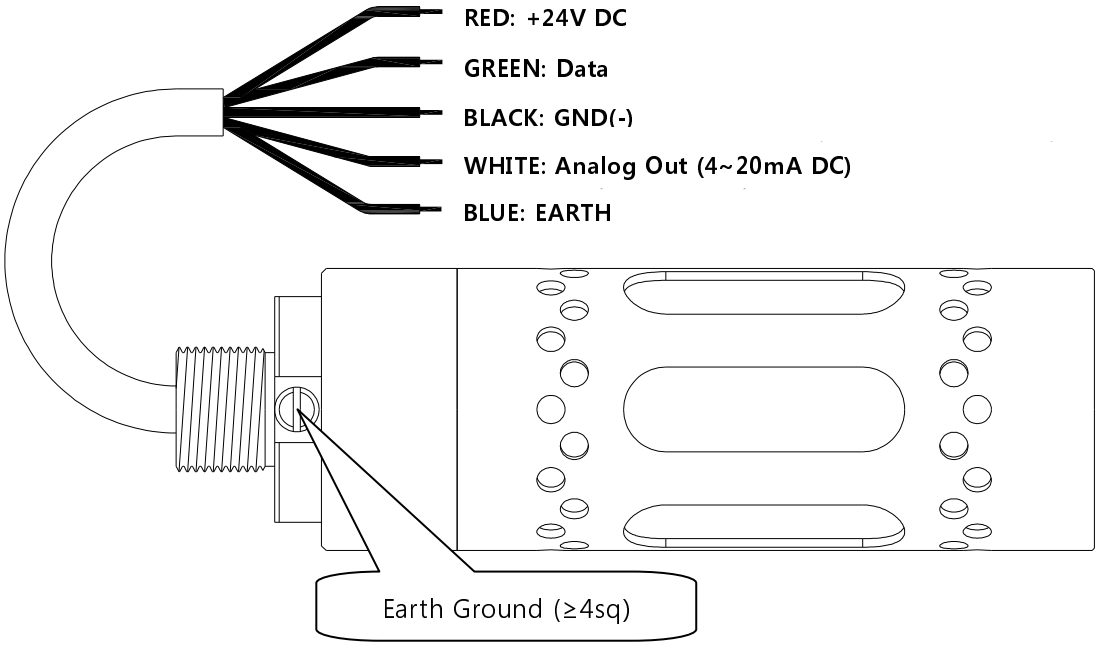
IR Source
This is a heater type IR generating part



Calibration Port
This is a gas inlet part for testing gas.

Filter fixing screw
This is only used for a filter

5. WIRING CONNECTION

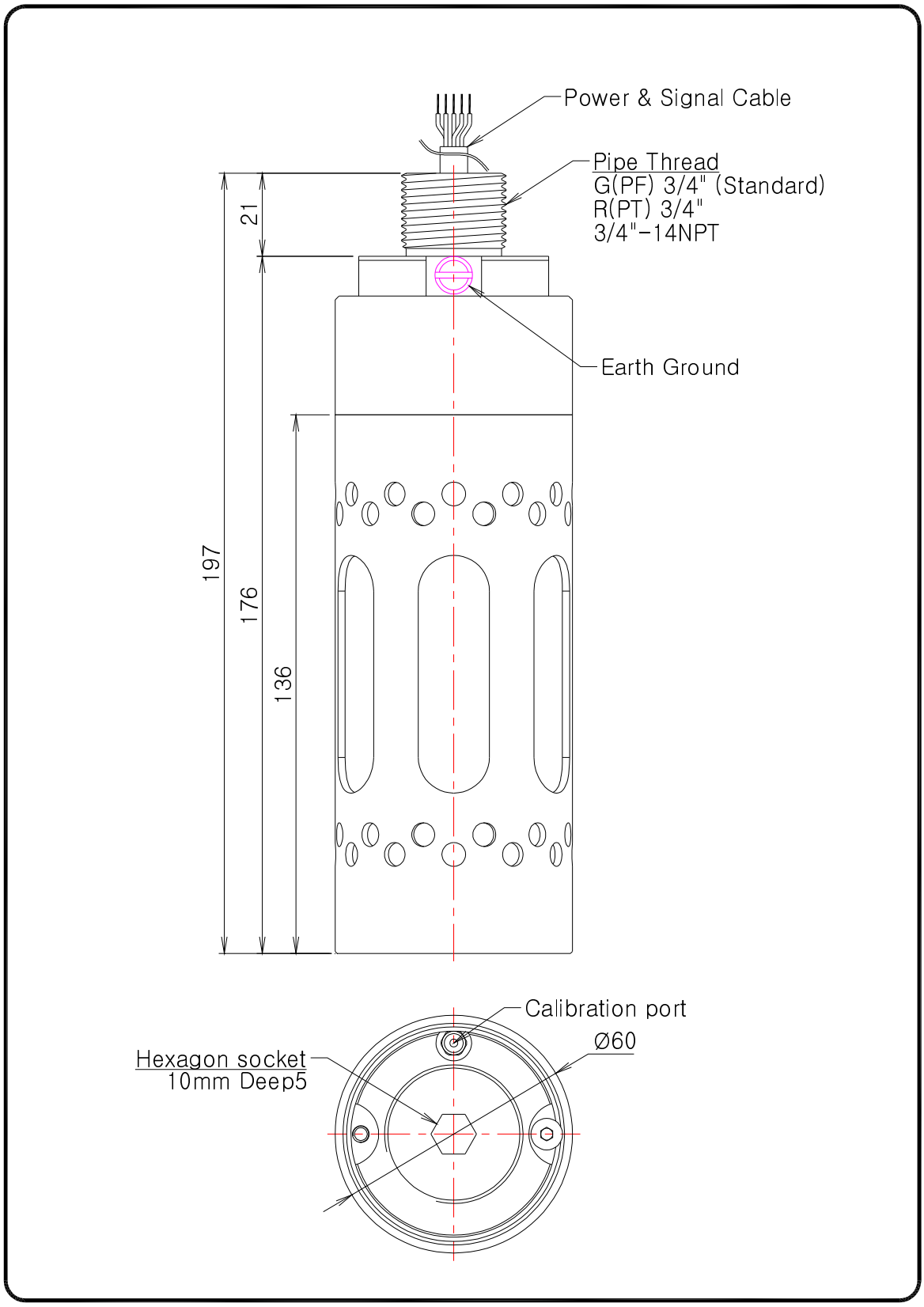


To supply the power to GSA920A, connect Red(+) and Black(-) from GSA920A to DC 24V terminal on the power supply and to receive analogue signal connect White from GSA920A to the analogue signal receiver device as above figure.
The data cable(Green) is for using to connect with Gastron IR detector, GIR-3000 which is possible to be done ZERO and SPAN calibration.

6. MAINTENANCE

To do maintenance supply, connect DC 24V power and over100mA current to GSA920. It is possible to be checked a current 4-20mA current value and desired scale value in Gastron display with connecting a multi-meter and Gastron transmitter.

7. APPERANCE AND DIMENSIONS



8. BEFORE INSTALLATION

8-1. Deciding installation site

(Data from Industrial Safety and sanitation law in Korea)

Installation site of gas leakage detector should follow the categories below.

1) Place where gas leakage is suspected such as compressor, valve, reactor, piping connections and chemical and corrosive installments used for combustible and/or toxic gases

2) Place where gas may dwell and near source of heat such as a heater in factory.

3) Connection of chargers for combustible and/or toxic material.

4) Transformer rooms, distribution rooms, and control rooms in hazardous area.

5) Other places where gas can congregate easily.

8-2. Deciding installation position

(Data from Laws regarding safety management of highly pressurized gas in Korea)

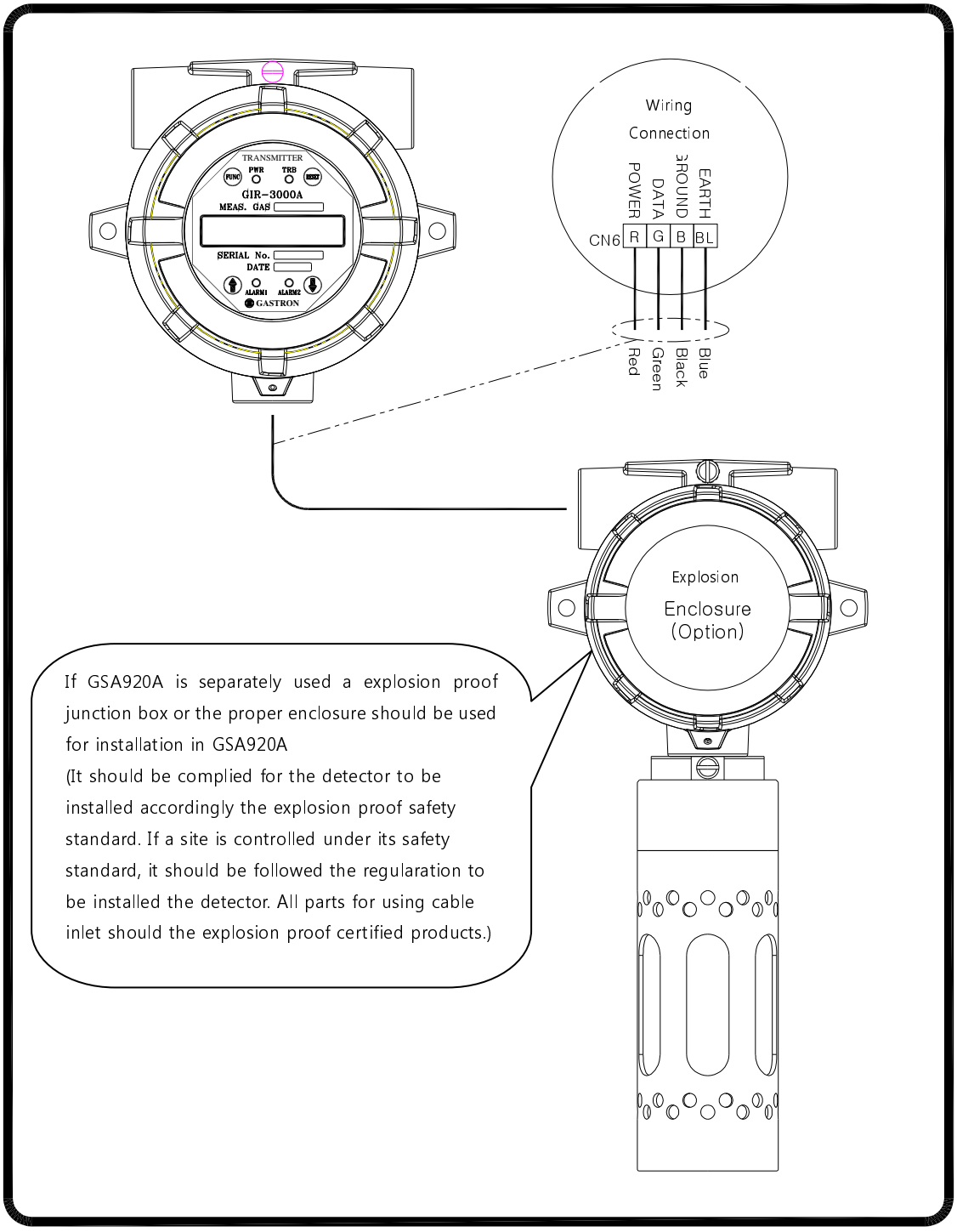
Gas leakage detector should be installed near the places where leakage is suspected. However, if the place has hazard of gas dwelling but does not have direct leakage, the detectors should be installed in following places.

1) Gas leakage detectors, which are installed outside a building, should be installed in places where gas may dwell considering direction of wind, speed of wind, and weight of the gas.

2) Gas leakage detectors, which are installed inside a building, should be installed near the base of the building if the gas is heavier than air and should be installed near vent or top of the building if the gas is lighter than air. Gas leakage detectors should be installed in working places.

8-3. Installation method

It is recommended to use GSA920A with Gastron transmitter, GIR-3000A. GSA920A is possible to be separately used from the transmitter. If GSA920A is separately used a explosion proof junction box or the proper enclosure should be used for installation in GSA920A


TRANSMITTER
FUNC
PWR
TRB
RESET
GIR-3000A
MEAS. GAS
SERIAL No.
DATE
ALARM1
ALARM2
GASTRON
Wiring
Connection
POWER
DATA
GROUND
EARTH
CN6
R
G
B
BL
Red
Green
Black
Blue
Explosion
Enclosure
(Option)
If GSA920A is separately used a explosion proof junction box or the proper enclosure should be used for installation in GSA920A
(It should be complied for the detector to be installed accordingly the explosion proof safety standard. If a site is controlled under its safety standard, it should be followed the regularation to be installed the detector. All parts for using cable inlet should the explosion proof certified products.)

8-4. Cautions on installation

We recommend installing detector where periodic maintenance can be easily performed. Also, please avoid installation where water (rain) may access and where vibrations or shocks may happen. Vibrations or shocks may cause wrong reading.

1) This gas detector has flame proof structure and can be used in group II, zone 0, zone 1 and zone 2 area.
2) Permissible temperature is below 85℃ (T6)
3) Ambient temperature is between -20℃ ~ 60
4) Installation height:

Below 1000M above sea level
Relative humidity: 0% to 95%
Installation position: In/Out door
Explosion/ignition proof approval: Ex d IIC T6

In case of using metal conduit or explosion proof cable gland to cable inlet when doing wiring work, please seal the conduit (within 45 cm) not to spread flame or gas through the conduit.

1) When connecting this detector with conduit, the screw thread should be more than 5 times.
2) Every material for cable inlet "Cable gland, sealing fitting and etc" should be passed for an authorization certainly.

The products and instruction manual can be revised for improvement performance and easy use without prior notice.

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