

Overview of Environmental Pollution Control Instrument and Related Equipment

Any machinery must be related to instrumentation and electricity. There is no exception for environmental protection equipment. The environmental protection equipment equipped with instrumentation and control will elaborate its functions and process “intelligence” and have more add-on values.

I 、Instrumentation and Control Equipment

Instrumentation and control have been extensively used for control as well as for monitoring, and recording. In other words, any instruments capable of performing monitoring and control are considered as instrument and control. Through the normal operation of instrument and control equipment, one can easily collect the various information and variables of a process for analysis and determination. The instrument and control to a system is like brain and nerve system to the body. The sensing portion is monitoring and the reaction is controlling. It is also like the monitoring gauges and instruments in an automobile. Regardless of how the function of the car is, the control is indispensable equipment to the driver.

In order to achieve the objective of monitoring and control, the basic components of instrumentation and control consists of (1) measuring element: sensor and transmitter, (2) deviation detector: the controller that compares the information received to the expected value and send out the control signal to the final control element, and (3) final control element: receiving the signal to alter the input to a process, e.g. control valve and frequency alternator, etc.

There are numerous categories of instrument and control equipment. The commonly-used instrument and control equipment in environmental protection and control are listed in Table 1.

II 、Accessories

Commonly used accessories include sampling, chemical addition, control valves and parts and depleted materials.

Table 1 : Commonly Used Instrument and Control Equipment in Environmental Protection

Item	Commodity Name	Remark
Temperature	Thermometer, Temperature Control	
Humidity	Hygrometer	
Pressure	Pressure Meter 、 Vacuum Meter	
Liquid Level	Ball Valve, Hydrostatic Pressure Liquid Level Indicator, Magnetic Float Liquid Level Indicator, Supersonic Liquid Level Indicator	
Flow Rate	Float, Flows the orifice, Venturi tube, Supersonic wave, Batardeau, (hot line) anemometer Float, Flows the orifice, Ventruri Flow Meter, Supersonic, Weir, (Hot Wire) Wind Gauge	
Weight	Load Cell	
Torque	Torsion killer 、 Maximum Torqu Limite, Torque Switch	
Revolving Speed	Tachometer	
Vibration	Vibrometer	
Noise	Noise Meter	
Quantity	Flow Control Pump, Chemical Dosing Pump, Sampling Pump	
Time/Procedure/Logic	Timer, Programmable Controller	

Table 1 : Commonly Used Instrument and Control Equipment in
Environmental Protection

Item	Commodity Name	Remark
Specific Gravity	Densitometer	
pH	pH Meter	
ORP	ORP Meter	
Conductivity	Conductivity Meter	Water quality target
Turbidity	Turbidity Meter	Original water target
Sludge Concentration	Sludge Concentration Meter	
Interface	Interface Meter, Sludge Interface Meter	
DO	DO Meter	
Water-Borne Grease and Oil	Water-Borne Grease & Oil Analyzer	
Total solid dissolution quantity	Total Dissolved Solid Meter	
Total Carbon	HC analyzer, Total Organic Carbon Analyzer	
Total Nitrogen	Total Nitrogen Analyzer	
Total Phosphorus	Total Phosphorus Analyzer	
COD	COD Analyzer	
Residual Chlorine	Residual Chlorine Monitor, Effective Chlorine Concentration Meter	
Chemical Composition	Gas Chromatography, Spectrophotometer, Photo -ionic Detector, Flame Ionic Detector	On-line the gas phase chromatographic analysis meter only then may supply using of the monitoring
Metal Composition	Atomic Absorption	On-line the product is rare
VOCs	VOC Detector, Photo Ionic Detector, Flame Ionic Detector	
Oxygen (Residual Oxygen)	Oxygen Detector, (Excess Air) Incineration Efficiency Analyzer	
Oxygen	Oxygen Detector, Oxygen Deficiency Detector, Oxygen Analyzer	

Table 1 : Commonly Used Instrument and Control Equipment in
Environmental Protection

Item	Commodity Name	Remark
Ozone	Ozone Detector	
Atmospheric Quality Detector	Air Quality Monitoring Device (Generally Including SO ₂ 、 CO 、 O ₃ 、 NO ₂ 、 HC 、 PSI)	
Indoor Air Quality	Carbon Dioxide Detector, Odor Detector, VOCs Detector	
Flue Gas	Emission Gas Analyzer (Usually Including O ₂ 、 CO ₂ 、 CO 、 HC 、 SO _x 、 NO _x)	
Combustible Gas	Combustible Gas Detector, Methane Detector	
Toxic Gas	Carbon Monoxide Detector, Sulfur Hydrogen Detector, Chlorine Gas Dector	
Particle	Powder Meter, Particle Analyzer	

PORTABLE GAS DETECTOR

1. Structure and Principle

Sensors are selected in according to the characteristic the gas and worksite, such as semiconductor sensors, electrochemical sensors or Non-dispersive Infrared (NDIR) and so on, integrated into the portable gas Detector modules.

2. Purpose

- (1) GT200 series can be used to detect carbon monoxide, methane, hydrogen sulfide and oxygen.
- (2) GT300-AQ/VOC air quality detector. General targets are Hydrocarbon Compounds, Smoke, Odor. GT300-AQ has high sensitive in Hydrogen. GT300-VOC has high sensitive in Ammonia, Toluene and Hydrogen sulfide.
- (3) GT220N model is suitable for detecting carbon dioxide.
- (4) GT500-NH₃ models can be used to detect ammonia.

3. Features

- (1) Durable : The sensor has a durability of 2~3 years under normal use.
- (2) Economical : The cost is approximately 1/2 of traditional detector.

4. Specifications and Functions

- (1) General specifications:
audible alarm and message backlight alphanumeric LCD,
Dimensions:
131mm×46mm×25.5mm,
Weight about 135g, Built-in 2,000mAH rechargeable lithium-ion battery.
- (2) Targets and Range of GT200-3G: carbon monoxide 0 ppm to 600 ppm, methane 0 ppm to 700 ppm, oxygen 3.0 vol % to 25.0 vol %.
- (3) GTF300-AQ/VOC, air quality detector; range: 1-200 CIAQ.
- (4) Targets and Range of GT220N : Carbon dioxide 0 ppm to 8,000 ppm.
- (5) Targets and Range of GT500-NH₃ : Ammonia 0 ppm to 150 ppm.

5. Product Photo



育強科技股份有限公司 GASTECH CO., LTD.

新北市深坑區北深路三段 155 巷 7 號 9 樓

9F, No.7, Ln. 155, Sec. 3, Peishen Rd., Shenkeng District., New Taipei City, Taiwan

TEL : +886-2-2664-9697 FAX : +886-2-2664-9695 E-mail : sales@ gastech.com.tw http : // www.gastech.com.tw

WALL-MOUNT TYPE GAS DETECTOR

1. Structure and Principle

Sensors are selected in according to the characteristic of gas and worksite, such as semiconductor sensors, electrochemical sensors or Non-dispersive Infrared (NDIR), Photo Ionization Detectors (PID) and so on, incorporated into wall-mount type gas detector modules.

2. Purpose

- (1) GTF200 series of models can be used to detect carbon monoxide, methane, hydrogen sulfide and oxygen.
- (2) GTF300-AQ, air quality detector. General targets are Hydrocarbon Compounds, Smoke, Odor and high sensitive gas is Hydrogen.
- (3) GTF300-VOC, air quality detector. General targets are Hydrocarbon Compounds, Smoke, Odor and high sensitive are Ammonia, Toluene and Hydrogen sulfide.
- (4) GTF220N, carbon dioxide detector.
- (5) GTF400 series can be used to detect chlorine, sulfur dioxide.

(6) GTF500 series can be used to detect CFCs, HFCs and ammonia.

(7) GTF600 series can be used to detect various oxygen concentrations.

(8) GTF700 series can be used to detect hydrocarbons and TVOC.

3. Features

- (1) Durable : The sensor has a durability of 2 ~ 3 years under normal use.
- (2) Economical : The cost is approximately 1/2 of traditional detector.

4. Specifications and Functions

- (1) General spec: Highly safe with IP65 enclosure design for aluminum alloy casing, sensor housing and buzzer housing, standard type offers precision current loop 4~20 mA or optional relay output, audible alarm and message, backlight alphanumeric LCD, Dimensions: 193 mm×91 mm×40 mm, Weight about 700g.

育強科技股份有限公司 GASTECH CO., LTD.

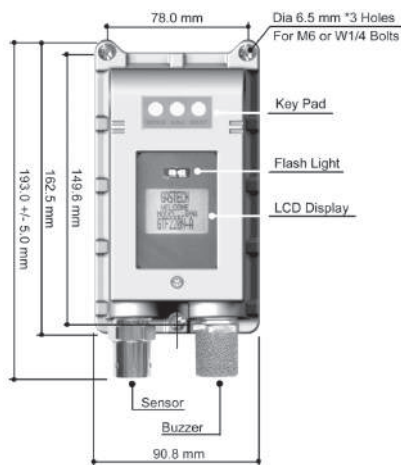
新北市深坑區北深路三段 155 巷 7 號 9 樓

9F, No.7, Ln. 155, Sec. 3, Peishen Rd., Shenkeng District., New Taipei City, Taiwan

TEL : +886-2-2664-9697 FAX : +886-2-2664-9695 E-mail : sales@ gastech.com.tw http : // www.gastech.com.tw

- (2) All this category oxygen detector, range: 0 ~ 25.0 / 1 ~ 96 vol %.
- (3) GTF200-CO, carbon monoxide detector, range: 0 - 250 ppm (standard), optional 0-999ppm.
- (4) GTF200-FL, flammable gases detector, range: 1.00 - 40.00 % LEL (methane base, standard model), optional 1.0 - 100.0 % LEL.
- (5) Specified gas of flammable gases detector, which are available for Hydrogen, Toluene, Acetylene, etc.
- (6) Specified hydrogen detector, range: 0 - 2,000 ppm. There is no sensitivity to the combustible gas.
- (7) GTF300-AQ, air quality detector; range: 1 - 200 CIAQ.
- (8) GTF300-VOC, air quality detector; range: 1 - 200 CIAQ.
- (9) GTF200N, carbon dioxide detector, range: 0 - 8,000 ppm.
- (10) GTF400 series of models can be used to detect chlorine, sulfur dioxide, range: 0 ~ 20 ppm.
- (11) GTF500 series can be used for R-12, R-22, R-134a, R-410a, R-407c, R-404a, range: 0 ~ 1,000 ppm. Or Ammonia, range: 0 ~ 150 ppm.
- (12) GTF700 series can be used to detect hydrocarbons, range: 0 ~ 300 ppm.

5. Product Photo



育強科技股份有限公司 GASTECH CO., LTD.

新北市深坑區北深路三段 155 巷 7 號 9 樓

9F, No.7, Ln. 155, Sec. 3, Peishen Rd., Shenkeng District., New Taipei City, Taiwan

TEL : +886-2-2664-9697 FAX : +886-2-2664-9695 E-mail : sales@ gastech.com.tw http : // www.gastech.com.tw

BATTERY LIFE EXTENSION EQUIPMENT

1. Structure and Principle

Patented pulsed wave technology is used to eliminate chemical degradation of the battery. It is a large-capacity charge and discharge system that can be used together.

2. Purpose

The life extension technology that can be used now increases battery life, reduces purchase costs (saves costs), and improves battery operating efficiency

3. Features

- (1) Decommissioned batteries are treated
- (2) with the equipment's life extension technology, and their performance can be restored and reused, which has the benefits of green energy, carbon reduction and environmental protection
- (3) The battery energy when the battery is discharged is returned to its own power supply system to save energy.

- (4) There are 1 ~ 3,000AH, DC250V~2,000V battery life extension capabilities and various specifications of battery charging, discharging and performance testing function
- (5) Battery monitoring equipment management can accurately detect battery quality, display data and graphics and monitor the whole process.
- (6) This equipment is used in battery life extension maintenance, which can save a lot of costs.
- (7) There is a 6-type battery program mode life extension recovery technology.
- (8) Professional products integrating IT technology
 - A. Charger, discharger
 - B. Battery Monitoring System (BMS)
 - C. Electric forklift battery monitoring system (FBMS).
 - D. Golf Car Battery Monitoring System (CBMS).
 - E. Communication room, energy storage system base station battery monitoring system (BBMS).

新國環境開發股份有限公司

NEW FACE ENVIRONMENTAL DEVELOPMENT CO.,LTD.

桃園市八德區廣福路 901 號 No.901, Guangfu Rd., Bade Dist., Taoyuan City, Taiwan

TEL : +886-3-363-3135 FAX : +886-3-363-3215

E-mail : newface@ms19.hinet.net http : //www.nface.com.tw

4. Specifications and Functions

MODEL	M-1	M-5	M-7	M-9
POWER	AC / 1ph / 220V	AC / 3ph / 220V - 440V		
OUTPUT	1.2-100V , 0-30A	1.2-120V , 0-50A	1.2-150V , 0-100A	1.2-75V , 0-350A
CAPACITY	300 AH	500 AH	1,000 AH	3,500 AH
Applicable	Small battery	Medium battery	Large battery	Very large battery

5. Product Photo



新國環境開發股份有限公司

NEW FACE ENVIRONMENTAL DEVELOPMENT CO.,LTD.

桃園市八德區廣福路 901 號 No.901, Guangfu Rd., Bade Dist., Taoyuan City, Taiwan

TEL : +886-3-363-3135 FAX : +886-3-363-3215

E-mail : newface@ms19.hinet.net http : //www.nface.com.tw

WELL FLUID PARAMETER MEASUREMENT SYSTEM

1. Structure and Principle

A fluid flow testing equipment installed onsite in the well so as to obtain the required parameters by monitoring and testing in real time. The obtained parameters are transmitted to a designated touch screen data collection center, which then displays the real time monitored data, states, and past trend graphs. The system allows the user to quickly collect and interpret data of the monitored site.

2. Purpose

Installed onsite in the monitoring system for site improvement. The system collects the data of every measurement in real time, keeps track of the status of site improvement, optimizes the improvement method, and lowers the manpower cost.

3. Features

- (1) Eliminates the problem of unsustainable manual monitoring as well as human errors in sample collection.
- (2) Easy to operate and allowed to obtain the complete onsite parameter data of the fluid being monitored in the well.
- (3) Lowers the manpower cost and keeps track of the site improvement status.

4. Specifications and Performance

- (1) A system for being used on site to monitor the well fluid.
- (2) A system for remotely monitoring the well fluid parameters.

The systems mentioned above are able to instantly retrieve 8 well fluid data, which are PH, DO, EC, ORP, air pressure, water pressure, border temperature, water temperature.

5. Product Photo



6. Award (Certification) Project

All systems use certified measurement instruments and regulatory compliance equipment.

冠誠環境科技工程股份有限公司

GUAN CHENG ENVIRO TECH PROTECTION CO.,LTD.

台南市永康區中正二街 567 號 No. 567, zhongzheng 2nd St., Yung-Kang District, Tainan City, Taiwan
TEL : +886-6-243-0986 FAX : +886-6-243-0711 E-mail : gc017@gcep.com.tw [http:// www.gcep.com.tw](http://www.gcep.com.tw)

GAS ANALYZER

1. Structure and Principle

Sensors are selected in according to the characteristic of gas and worksite, such as semiconductor sensors, electrochemical sensors or Non-dispersive Infrared (NDIR), Photo Ionization Detectors (PID) and so on, incorporated into analyzer module.

2. Purpose

- (1) GTF600/601/602/605, trace oxygen analyzer.
- (2) GTF220N, carbon dioxide analyzer.
- (3) GTF700 series can be used to detect hydrocarbons and TVOC.

3. Features

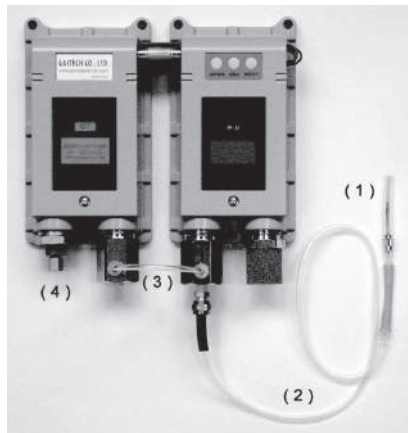
- (1) Durable : The sensor has a durability of 2 ~ 3 years under normal use.
- (2) Economical : The cost is approximately 1/2 of traditional analyzer.

4. Specifications and Functions

- (1) General spec : Highly safe and IP65 enclosure design with aluminum alloy casing and buzzer housing. Standard type offers precision current loop 4~20 mA, audible alarm and message, backlight alphanumeric LCD.

- (2) GTF600/601/602/605, trace oxygen analyzer, range: 10 ~ 1,000 ppm/ 100 ~ 10,000 ppm/ 200 ~ 20,000 ppm/ 500 ~ 50,000 ppm.
- (3) GTF220N, carbon dioxide analyzer; range : 0 ~ 8,000 ppm / 0-100 %.
- (4) GTF700-TVOC series can be used to detect hydrocarbons, range: 0 ~ 300 ppm.

5. Product Photo



(Photo: food packaging specific oxygen analyzer)

育強科技股份有限公司 GASTECH CO., LTD.

新北市深坑區北深路三段 155 巷 7 號 9 樓

9F, No. 7, Lane 155, Sec. 3, Peishen Rd., Shenkeng Shiang, Taipei, Taiwan

TEL : +886-2-2664-9697 FAX : +886-2-2664-9695 E-mail : sales@ gastech.com.tw http : // www.gastech.com.tw

100% CHEMICAL-FREE WATER PURIFICATION SYSTEM (Copper-Silver Ionization Water Disinfection System)

1. Structure and Principle

Concept

The Guen Young water purification system operates on the basis of the well-known oligo-dynamic principle through ions of the metals silver and copper.

The Guen Young module uses this well established principle, which not only ensures that an appropriate solution pressure of the metals is maintained but also creates a time-and power-controlled alternating current at the electrodes, which determines dosed emission of silver and copper ions. This system takes into account individual characteristics of the water to be processed - whether it is located indoor or outdoor, and whether it is hard or soft, this unit is a convenient and highly effective water purification system. It releases extremely low concentration (parts per million) of silver and copper ions based on your configuration.

2. Features

- (1) Prevent Legionella, Pneumophila and lime buildup.
- (2) Simultaneous elimination of scale, germs and algae for improvement of water quality in cooling towers.
- (3) 100% chemical free and minimal maintenance cost.
- (4) Automatic flocculation.
- (5) Produce water with neutral odor and color; water contains no irritants.
- (6) Prolong usage life of the condenser in cooling tower.
- (7) Environmental factor does not affect the water quality.

3. Product Photo



冠陽欣業有限公司 GUEN YOUNG ENTERPRISE CO., LTD.

台中市台中工業區 37 路 31 號 No. 31, 37th Rd., Taichung Industrial Park, Taichung City, Taiwan
TEL : +886-4-2355-2226 FAX : +886-4-2355-1932 E-mail : service@guenpool.com <http://www.guenpool.com>

SUPER-FINE FIBRE DUST-FREE RAG

1. Structure and Principle

The wiper is a polyester structure knitted with 100 % continuous micro-denier filaments, which features a specialty cross-section. Each filament is twenty-fifth in diameter of human hair. Ultrasonically cut, sealed and laundered with DI water in a class 1 cleanroom environment, it is designed to wipe off micro-contaminants from the surfaces of sophisticated high technology products and cleanroom tools. It exhibits excellent wiping performance, high absorbency and chemical resistance.

2. Purpose

Ideal for use in high technology industries, including semiconductor, TFT-LCD, optical electronics, biotechnology, cleanroom construction and equipment, for which operations are processed in cleanroom environment.

3. Features

- (1) All edges are ultrasonically cut and sealed to prevent release of fibers and particles.
- (2) All wipers are laundered and packed in class 1 cleanroom with ultra-low levels of particles, ions and residues assured

- (3) With diameter as twenty-fifth of a human hair, filaments are shaped to a specialty cross-section that features grooves for excellent absorbency and particle trapping.

- (4) Polyester has excellent chemical resistance.

4. Specifications and Functions

- (1) Basis Weight: $142 \pm 3 \text{ g/m}^2$
- (2) Sorptive Capacity: $\geq 380 \text{ ml/m}^2$
- (3) Sorptive rate: $\leq 1 \text{ sec}$
- (4) Particls ($\geq 0.5 \mu\text{m}$) ≤ 50 counts
- (5) Ions
 - ※ Na^+ : 0.9 ppm.
 - ※ K^+ : 0.1 ppm.
 - ※ Cl^- : 0.2 ppm.
 - ※ Non-volatile residue in IPA $\leq 0.01 \text{ g/m}^2$

5. Product Photo



尚磊科技股份有限公司

SUNRAY SCIENCE & TECHNOLOGY CO.,LTD.

台北市内湖区瑞光路 258 巷 50 號 2 樓 2F, No. 50, Lane 258, juikuang Rd., Neihu, Taipei, Taiwan

TEL : +886-2-8797-1123 FAX : +886-2-8797-1127

E-mail : sunraytw@ms35.hinet.net http : // http://www.sun-ray.com.tw