



PRODUCTS AND APPLICATIONS

Presented by:
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International Sales Manager

WHO WE ARE



- Founded in 1995 in British Columbia, Canada
- One of the leading global manufacturers of fixed gas detection systems
- Products are designed and made in Canada
- Network of over 100 distributors worldwide

We care about your air!

TYPES OF HAZARDOUS GASES

Toxic



(ppm/ppb)

Carbon Monoxide,
Nitrogen Dioxide,
Ammonia, Chlorine
etc.

Combustible



(%LEL)

Methane
Propane
Hydrogen

Refrigerants



(ppm)

R22, R123,
R134A, R410A,
R438A, HFCs
etc.

Asphyxiants



(%Vol)

Oxygen
Depletion

TVOCs



(ppm)

Volatile
Organic
Compounds

Particulates



($\mu\text{g}/\text{m}^3$)

Dust, Smoke,
Pollen, Spores,
etc.

TYPES OF GAS SENSORS



Electrochemical	Toxic Gases	Ammonia Carbon Monoxide Nitrogen Dioxide Oxygen	Hydrogen Chlorine Ozone Ethylene
Catalytic Pellister Solid State Infrared (NDIR)	Combustible gases	Methane Propane Hydrogen	Butane Hexane Acetylene
Photoionization (PID)	Volatile Organic Compounds (VOC)	Benzene Formaldehyde	Toluene Xylene
Solid State Infrared (NDIR)	Refrigerants	R22 R134a	R410a R438a

FIXED GAS DETECTION PRODUCTS

Gas Detectors/Transmitters



System Controller



Self-Contained Controller



Remote & Peripheral Devices



Accessories



LPT LOW POWER TRANSMITTER



- Basic analog transmitter
- Single gas sensor
- Up to 6 sensors to choose from (CO, NO₂, NH₃, O₂, Cl₂, O₃)
- 4-20 mA output
- LED indicator for power and fault conditions
- Option:
 - ✓ Splash guard

CGAS-A ANALOG TRANSMITTER



- Single gas sensor, analog transmitter
- Up to 36 gas sensors to choose from consisting of toxic, refrigerant and combustible gases
- User selectable 4-20 mA or 0-10 V output
- LCD display
- Options:
 - ✓ Internal dry contact relay
 - ✓ Internal dry contact relay and buzzer
 - ✓ RH/temperature sensors
 - ✓ Splash guard

CGAS-D DIGITAL TRANSMITTER



- One or two-gas sensor digital transmitter
- Up to 36 gas sensors to choose from consisting of toxic, refrigerant and combustible gases
- User selectable BACnet or Modbus output
- LCD display
- Options:
 - ✓ Internal dry contact relay
 - ✓ Internal dry contact relay and buzzer
 - ✓ RH/temperature sensors
 - ✓ Splash guard

CGAS-CO₂ CARBON DIOXIDE TRANSMITTER



- Single, non-dispersive, infrared CO₂ sensor
- Sensor life expectancy ~8 years
- Available in two versions:
 - ✓ Analog with user selectable 4-20 mA or 0-10 V output
 - ✓ Digital with user selectable Modbus or BACnet output
- LCD display
- Options:
 - ✓ Internal dry contact relay
 - ✓ Internal dry contact relay and buzzer
 - ✓ RH/temperature sensors
 - ✓ Splash guard

CGAS-IR INFRARED REFRIGERANT TRANSMITTER



- Single, non-dispersive, infrared refrigerant sensor
- Sensor life expectancy ~8 years
- Up to 28 infrared refrigerant sensors to choose from
- Available in two versions:
 - ✓ Analog with 4-20 mA or 0-10 Vdc output signal
 - ✓ Digital with Modbus or BACnet output signal
- One internal dry contact relay
- Internal audible alarm
- LCD display
- Option:
 - ✓ Splash guard

ESH-A REMOTE SENSOR (not a transmitter)



- Allows remote monitoring of combustible or TVOC gases
- Single gas sensor
- Up to 5 sensors to choose from (C_2H_2 , H_2 , CH_4 , C_3H_8 , PID TVOC)
- Communicates with CET self-contained controller and transmitters
- Option:
 - ✓ Splash guard

SPLASH GUARD

Factory-installed optional accessory to gas detectors

Protects sensor from water spray and wash downs

When installed, enclosure is IP54 rated



CGAS-P FOR INDOOR PUBLIC SPACE



- Designed for monitoring indoor air quality or refrigerant in offices, hotels, schools, hospitals, airports, shopping malls, etc.
- One or two-gas sensor transmitter
- Internal CO, CO₂, PM1, PM2.5, PM10 or refrigerant R410A sensors
- Available in two versions:
 - ✓ Analog with user selectable 4-20 mA or 0-10 V output
 - ✓ Digital with user selectable Modbus or BACnet output
- LCD display
- Options:
 - ✓ Internal dry contact relay
 - ✓ Internal dry contact relay and buzzer
 - ✓ RH/temperature sensors

CGAS-P FOR PTAC & VTAC AIR CONDITIONING SYSTEMS



- Designed for monitoring refrigerants in air conditioning systems in hotels
- Remote dongle style R404A or R410A transmitter with 9-metre sensor cable
- Available in two versions:
 - ✓ Analog with user selectable 4-20 mA or 0-10 V output
 - ✓ Digital with user selectable Modbus or BACnet output
- LCD display
- Options:
 - ✓ Internal dry contact relay
 - ✓ Internal dry contact relay and buzzer
 - ✓ RH/temperature sensors

SYSTEM CONTROLLER

FCS FLEXIBLE CONTROL SYSTEM



- Available in 4, 8, 32 or 128-channel configuration
- Accepts inputs from Modbus transmitters
- Available with Modbus or BACnet output for comms with BMS
- Fully programmable alarm and control functions
- Two 24VDC drive outputs for two remote alarms
- Data logging
- Internal audible alarm
- Graphic, full colour, LCD display
- Four internal dry contact relays (expandable up to 60)
- Optional analog inputs from transmitters (up to 60)
- Optional analog outputs to control VFD-activated ventilation fans (up to 60)

FCS REMOTE PERIPHERAL DEVICES

CET-RDM

Remote Display
Module



Displays the same
information as the FCS
controller

LNK-AI

Remote Analog
Input



Adds 4 analog inputs to
the FCS controller

LNK-AO

Remote Analog
Output



Adds 4 analog outputs to
the FCS controller

LNK-XT

BUS Network
Extender



Works as a signal
booster extending the
network length by an
additional 609 metres

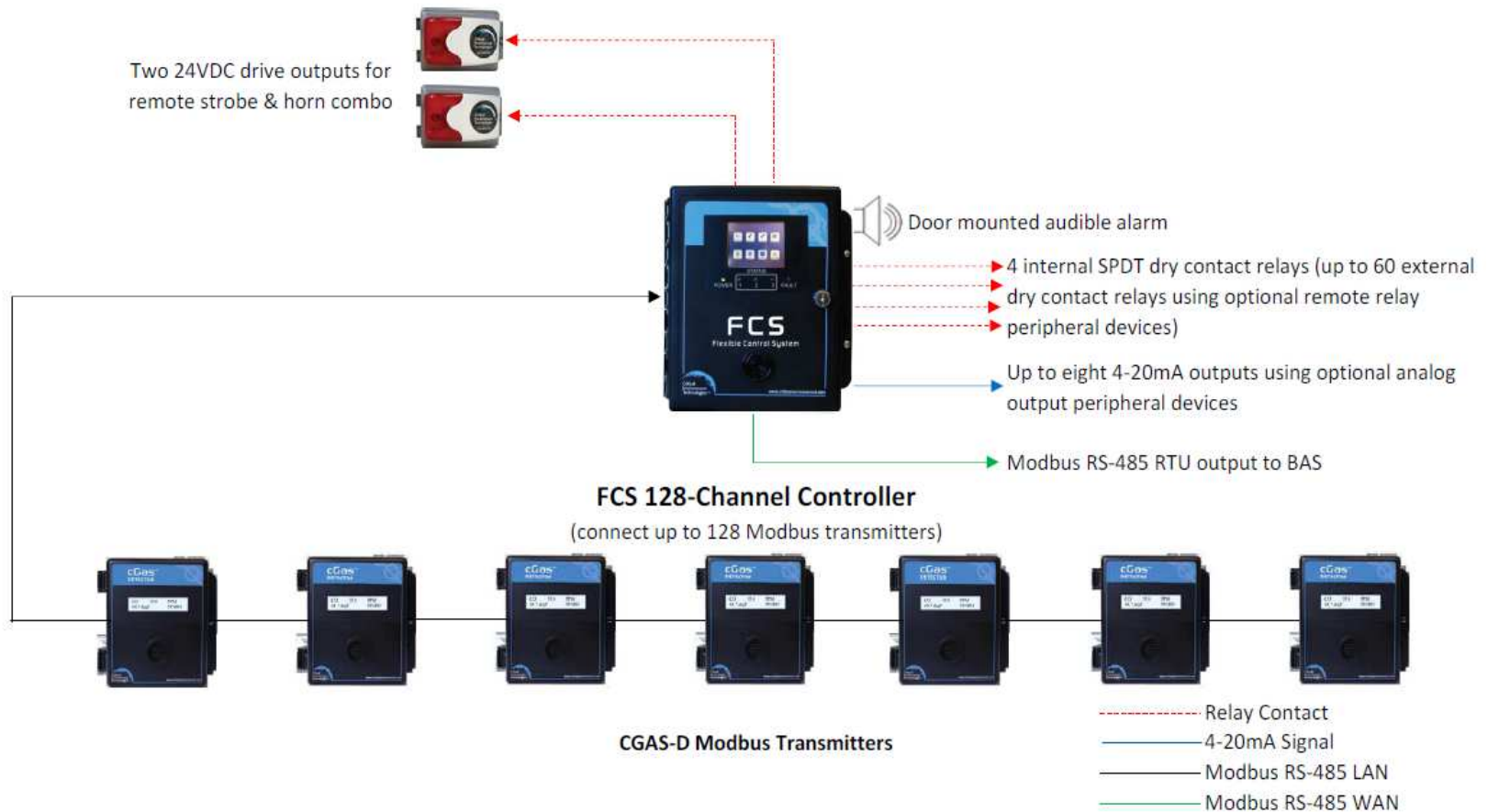
RLY-4/8

Remote Relay
4 or 8 Relays

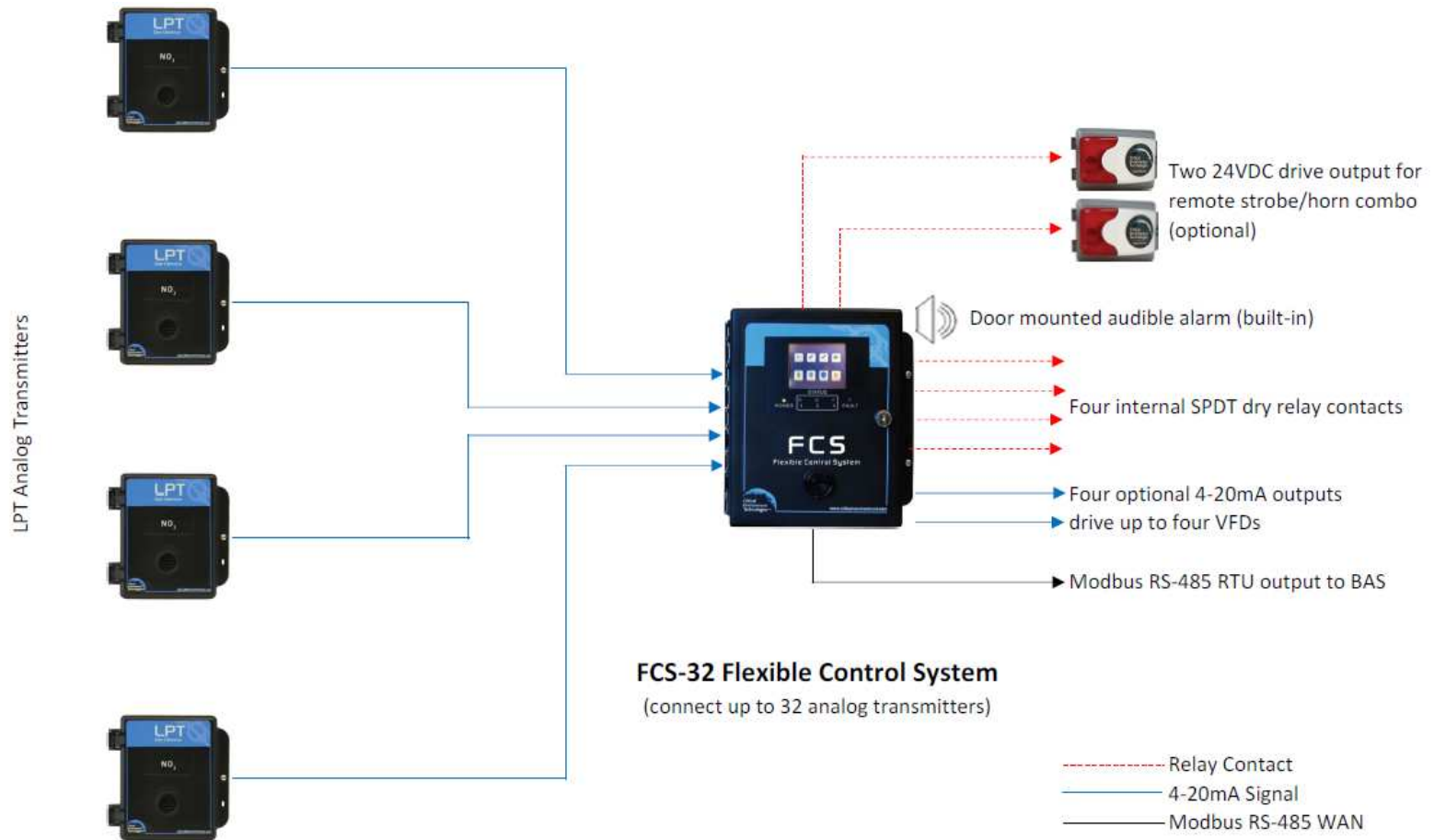


Adds 4 or 8 relays to the
FCS controller

DIGITAL MODBUS COMMUNICATION WITH FCS



ANALOG SIGNAL COMMUNICATION WITH FCS-AI



SELF-CONTAINED CONTROLLER

CGAS-SC SELF CONTAINED CONTROLLER



- Designed for monitoring and control of toxic, combustible and refrigerant gases
- One to three channels (internal and remote sensors)
- 4-20 mA input (from remote sensors or analog transmitters)
- User selectable Modbus or BACnet output for comms with BAS
- Internal audible alarm
- LCD display with LED indicators
- Fully programmable alarm and control functions
- Two internal dry contact relays (to control ventilation fans)
- Options:
 - ✓ Two 4-20 analog outputs (for VFD-controlled fans)
 - ✓ RH/temperature sensors
 - ✓ Splash guard

CGAS-SC WITH TWO ESH-A REMOTE SENSORS



ESH-A-CH2-100 Remote Sensors



CGAS-SC-2RS Two Channel Controller
(connect up to two remote sensors or analog transmitters)

- - - - Relay Contact
- Analog Signal
- Digital Signal

DCC-MRI OXYGEN SAMPLING SYSTEM



- Designed for MRI rooms
- Oxygen sensor 0 - 25% vol
- Sample draw pump
- One internal dry contact relay
- One 4- 20 mA output to BAS
- Loud side-mounted buzzer
- LCD display with LED indicators

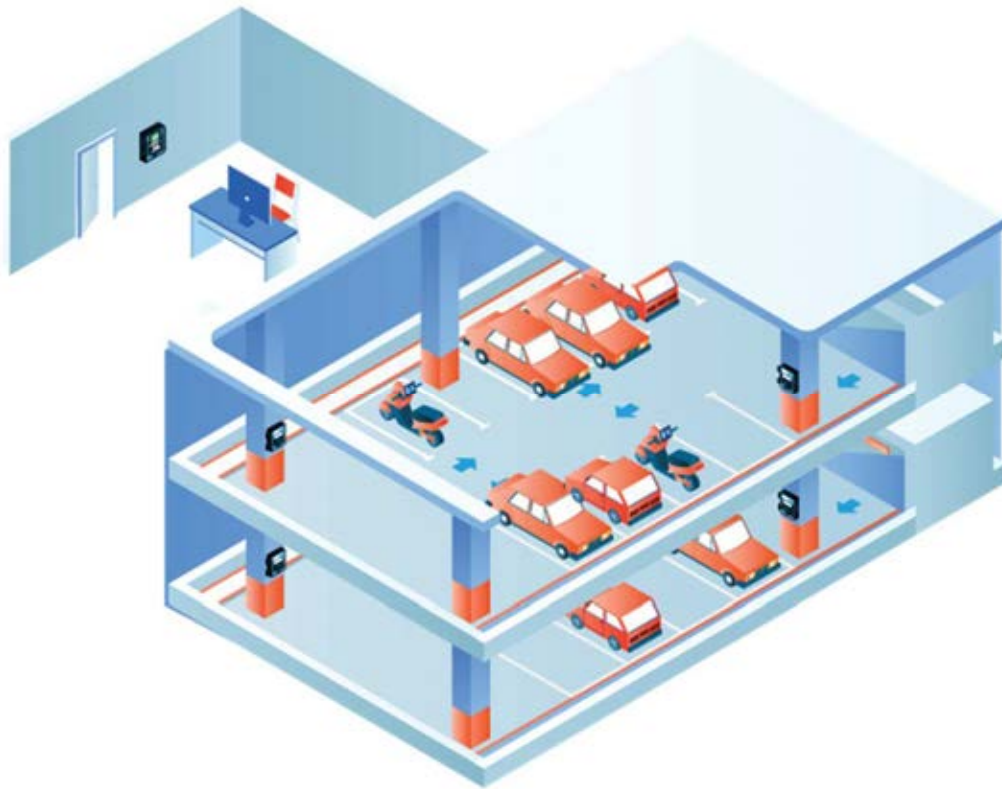
COMMUNICATION PROTOCOLS

DIGITAL COMMUNICATION



APPLICATIONS

ENCLOSED PARKING GARAGES



TOP 3 CONSIDERATIONS:

1. Gas detection system operates ventilation systems, on demand controlled
2. One gas detector provides coverage area of up to 700 m²
3. Alternate fuel vehicles that use natural gas and LPG

KEY GASES:

- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO₂)
- Methane (CH₄) or Propane (C₃H₈)

CET PRODUCTS:



FCS Controller



CGAS-D with up to 2 channels



ESH-A Remote C₃H₈ or CH₄ Sensor

HOW DOES IT WORK?

Continuous monitoring and reporting of target gas to activate ventilation system when required. If concentration continues to rise, activates audible/visual alarm indicators to notify personnel.

A gas detector detects and measures the target gas concentration in the ambient atmosphere

Controllers, control relays, outputs, send information to BAS, DDC or other control panel



Controller

Gas detector



Gas detector



Gas detector



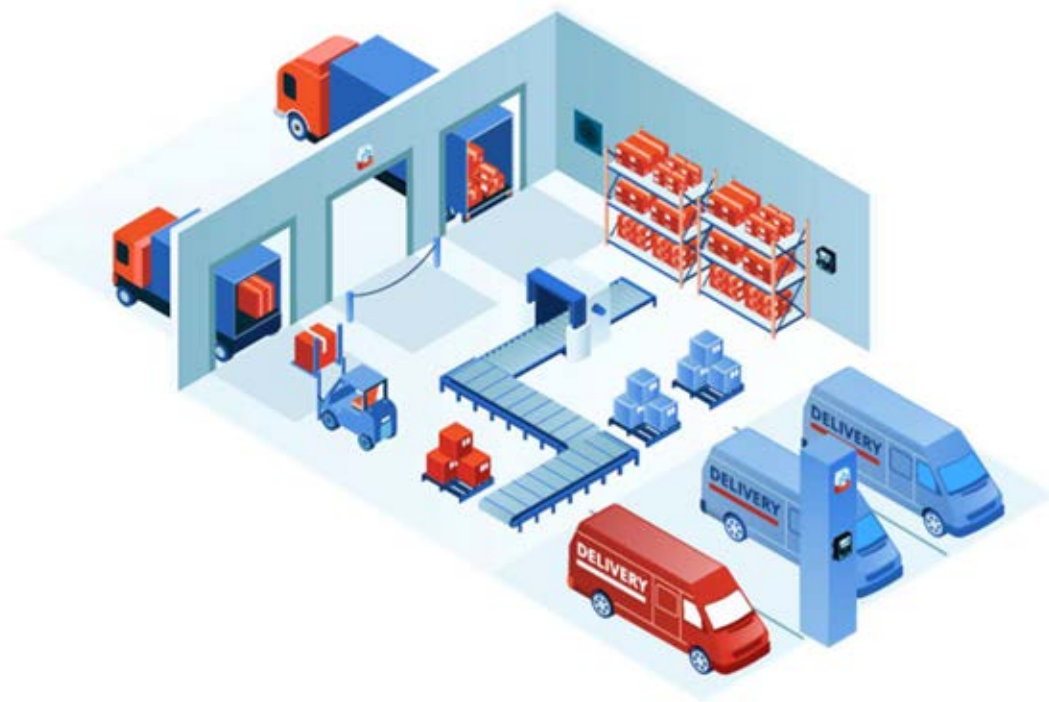
Gas detector



Signal



DISTRIBUTION WAREHOUSES



TOP 2 CONSIDERATIONS:

1. Vehicles backing up to the loading bays and entering the building to be loaded with forklifts
2. Audible / visual devices should be mounted high up on the walls or columns

KEY GASES:

- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO₂)
- Hydrogen (H₂)

CET PRODUCTS:



FCS Controller

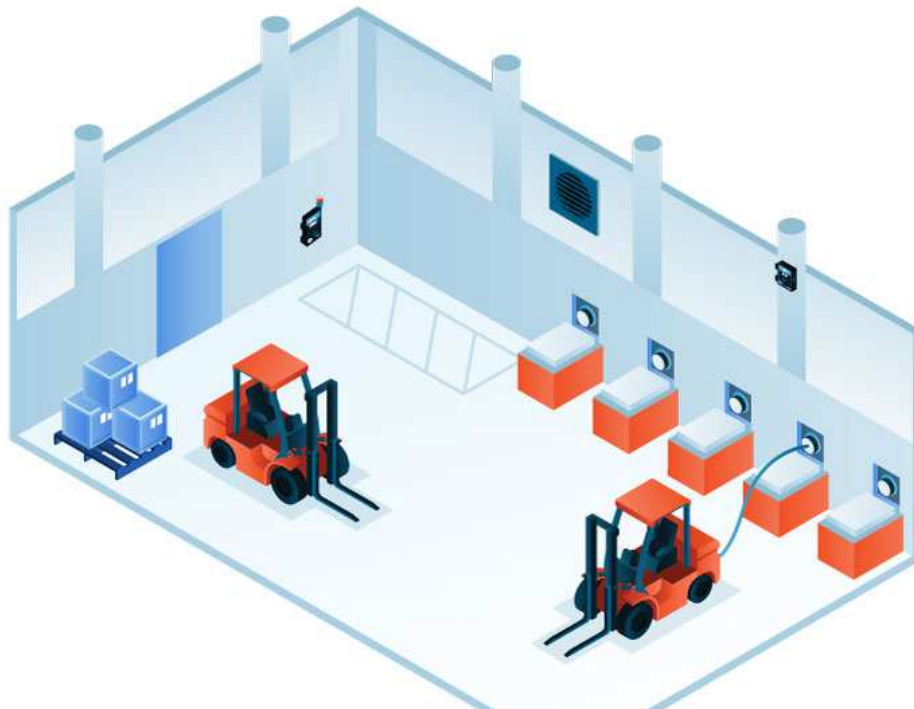


CGAS-D Detector



ESH-A Remote Sensor with H₂

BATTERY CHARGING ROOMS



TOP 3 CONSIDERATIONS:

1. Lead-acid batteries, when charging, release Hydrogen gas that can be potentially explosive
2. Hydrogen sensor will be mounted on or near the ceiling
3. One Hydrogen gas detector covers up to 465 m²

KEY GASES:

Hydrogen (H₂), 0 - 100 %LEL range

CET PRODUCTS:

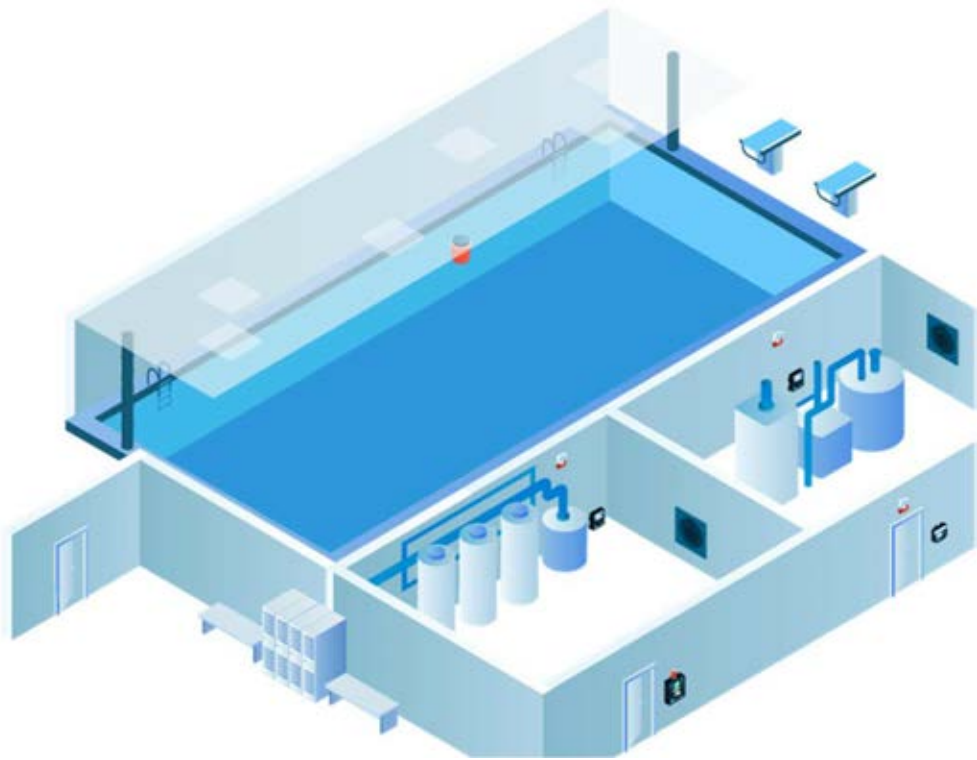


CGAS-SC Self-Contained Controller



ESH-A Remote Sensor

INDOOR POOLS



TOP 3 CONSIDERATIONS:

1. Chlorine is a common disinfectant used for water treatment
2. Important to have a continuous gas detection system to monitor leaks in the Chlorine feed and storage room
3. Carbon dioxide is used to maintain optimum pH levels in swimming pools

KEY GASES:

- Chlorine (Cl_2)
- Carbon Dioxide (CO_2)

CET PRODUCTS:



FCS Controller



CGAS-D Detectors

CHILLER / MECHANICAL ROOMS



TOP 3 CONSIDERATIONS:

1. Detection of refrigerant leak in chiller rooms can prevent dangerous health implications to occupants and reduce additional energy costs
2. Each chiller requires its own dedicated gas detector to prevent loss of ammonia or refrigerant by leakage
3. Outside the chiller room should be a Controller with a strobe and manual shut off switch to meet B52 code requirements

KEY GASES:

- Ammonia (NH₃)
- Refrigerants

CET PRODUCTS:



FCS Controller



CGAS-D Detector



CGAS-IR Infrared Refrigerant detector

COLD STORAGE/FREEZER ROOMS



TOP 3 CONSIDERATIONS:

1. Detection of Ammonia leak in cold storage or freezer rooms can prevent dangerous health implications to occupants
2. Remote strobe/horn mounted inside cold room
3. Outside the cold room should be a Controller with a strobe and manual shut off switch to meet code requirements

KEY GASES:

- Ammonia (NH₃)
- Refrigerants

CET PRODUCTS:



FCS Controller



CGAS-D Detector

COMMERCIAL KITCHENS



TOP 2 CONSIDERATIONS:

1. Gas cooking equipment often use natural gas or LPG for energy supply
2. Natural gas is mostly methane and LPG is mostly propane. These gases are highly flammable.

KEY GASES:

- Natural Gas / Methane (CH_4)
- Liquefied Petroleum Gas / Propane (C_3H_8)
- Carbon Monoxide (CO)

CET PRODUCTS:



FCS Controller



CGAS-D Detector



ESH-A Remote Sensor

HOTEL ROOMS



TOP 2 CONSIDERATIONS:

1. Leaking refrigerant from air conditioning units in hotel rooms evaporates into a gas and is harmful for the environment and for humans to inhale
2. Ideal for use with either Packaged Terminal Air Conditioner (PTAC) and Vertical Terminal Air Conditioner (VTAC) applications to meet code requirements

KEY GASES:

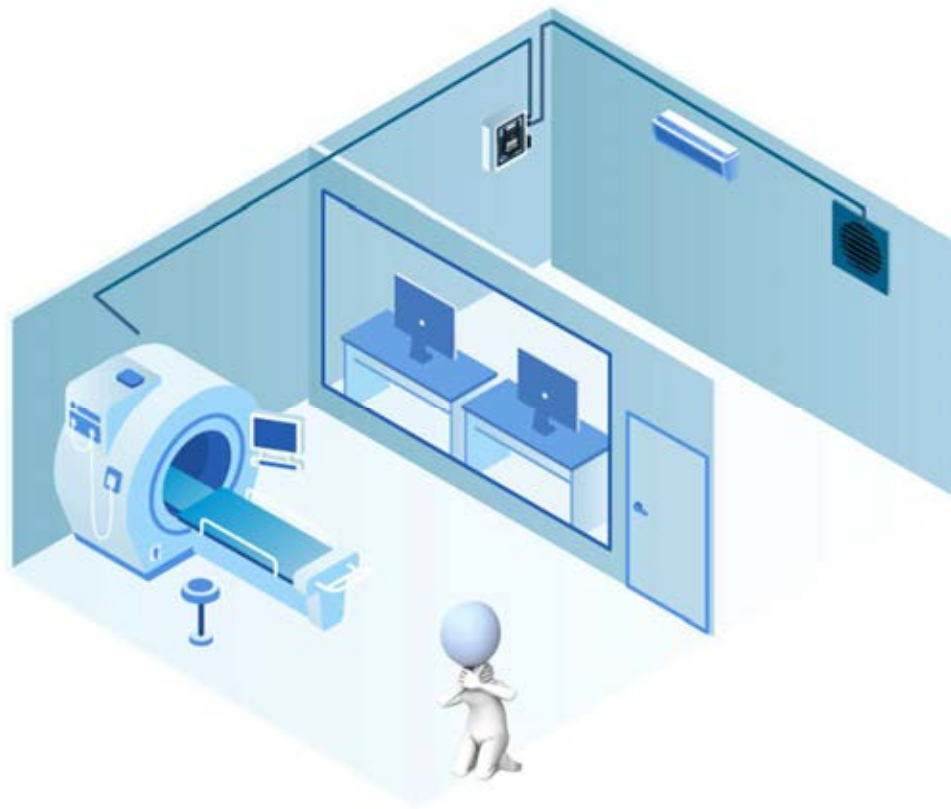
- Refrigerants R404A and R410A

CET PRODUCT:



CGAS-DP Detector

MRI ROOMS



TOP 3 CONSIDERATIONS:

1. Compressed gases and cryogenic liquids are used to cool the superconducting magnets in MRI machines.
2. If a coolant leak occurs, the hazardous gases can displace Oxygen in the room creating a dangerous situation for the people inside the room.
3. The DCC-MRI should be mounted outside the MRI room so the strong magnetic field inside the MRI rooms cannot interfere and cause it to malfunction

KEY GASES:

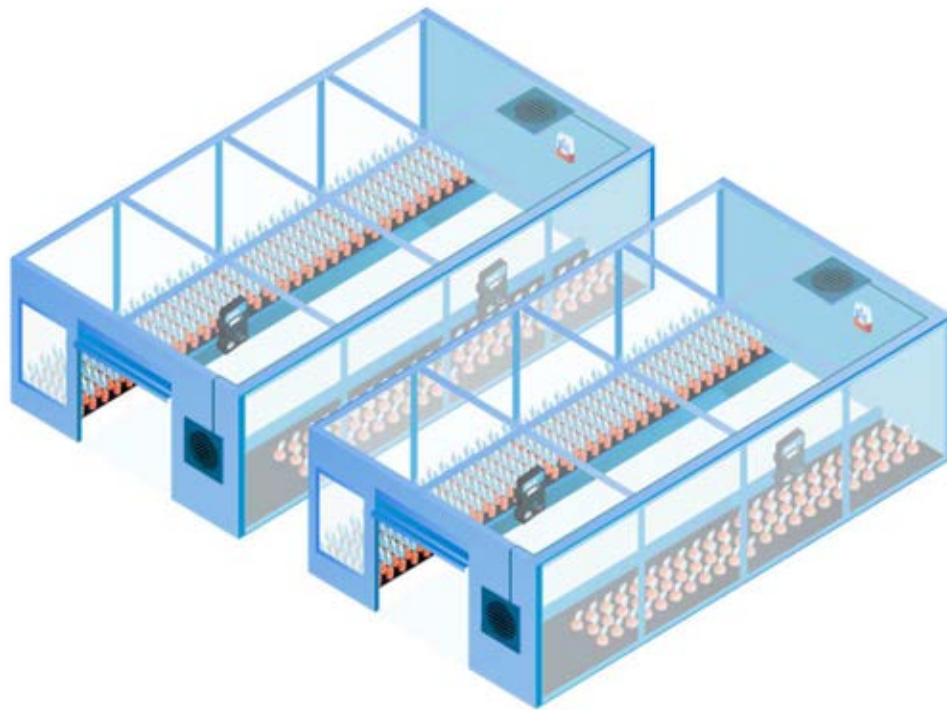
- Oxygen deficiency (O_2)

CET PRODUCTS:



DCC-MRI Oxygen Sampling System

FRUIT RIPENING ROOMS



TOP 3 CONSIDERATIONS:

1. Ethylene is commonly used to speed up fruit ripening process
2. Exposure to Ethylene can cause headache, dizziness, fatigue, lightheadedness, confusion and unconsciousness
3. As fruit ripens it releases Carbon Dioxide and decreases the Oxygen level in the room

KEY GASES:

- Ethylene (C_2H_4)
- Carbon Dioxide (CO_2)

CET PRODUCTS:



CGAS-SC Self-Contained Controller

WINERIES & BREWERIES



TOP 2 CONSIDERATIONS:

1. Alcohol fermentation produces Carbon Dioxide as a metabolic waste product and displaces Oxygen
2. Carbon dioxide or Ozone can be used as a disinfectant in the bottling area, an O_3 detector should be mounted near the floor

KEY GASES:

- Carbon Dioxide (CO_2)
- Ozone (O_3)

CET PRODUCTS:

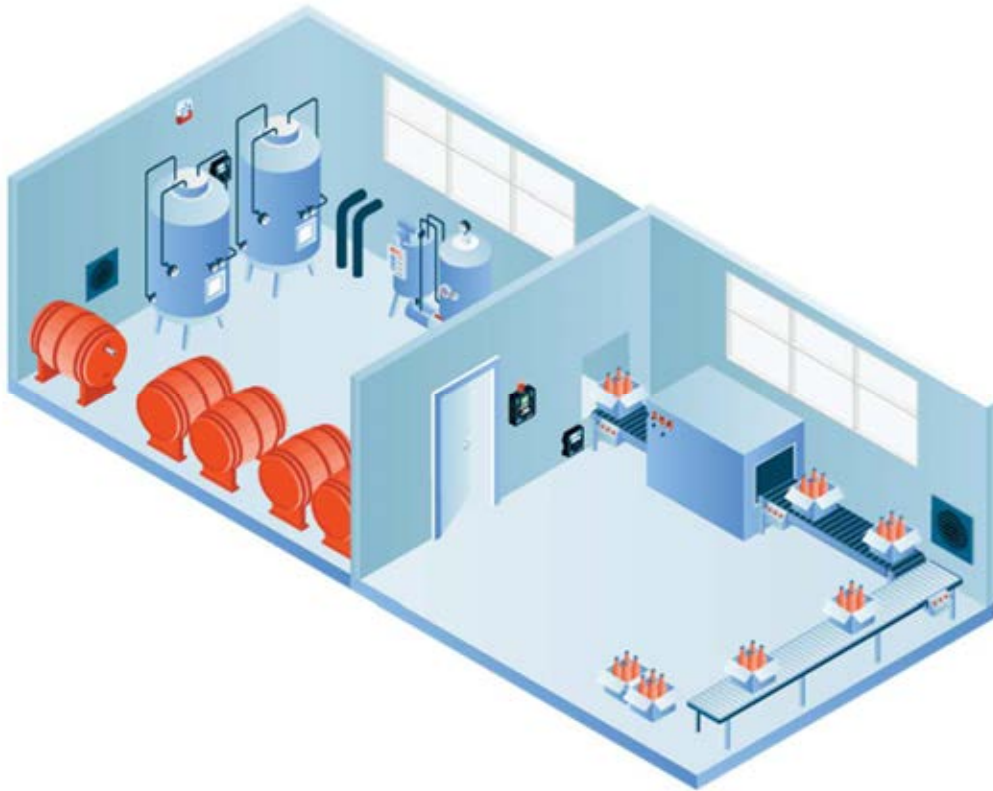


CGAS-SC Self-Contained Controller



CGAS-A Detector

MICRODISTILLERIES



TOP 3 CONSIDERATIONS:

1. Distillation process produces Ethanol and can build up if not properly ventilated
2. Ethanol is a highly flammable liquid and when it makes contact with air it becomes a highly explosive vapour
3. Carbon dioxide or Ozone can be used as a disinfectant in the bottling area

KEY GASES:

- Carbon Dioxide (CO_2)
- Ethanol ($\text{C}_2\text{H}_6\text{O}$)
- Ozone (O_3)

CET PRODUCTS:



FCS Controller



CGAS-D Detector

WELDING SHOPS



TOP 2 CONSIDERATIONS:

1. Gas detection system operates ventilation systems, on demand controlled
2. Depending on the type of welding, different hazardous gases may need monitoring

KEY GASES:

- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO₂)
- Acetylene (C₂H₂)

CET PRODUCTS:

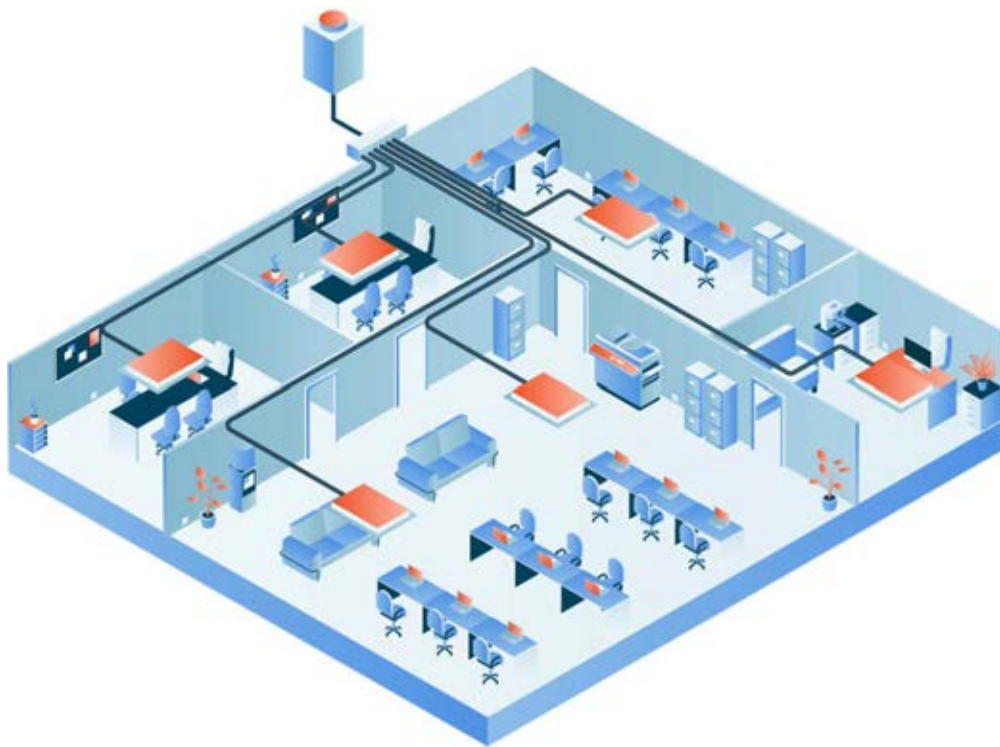


CGAS-SC Self-Contained Controller



ESH-A Remote Sensor

AC IN COMMERCIAL BUILDINGS



TOP 2 CONSIDERATIONS:

1. High volume refrigerant cooling and heating system are used to keep the indoor environment comfortable
2. The building's VRF system design and location of pipes and indoor units and other sources of potential leaks or local codes will determine how many gas detectors are required

KEY GASES:

- Refrigerant

CET PRODUCTS:

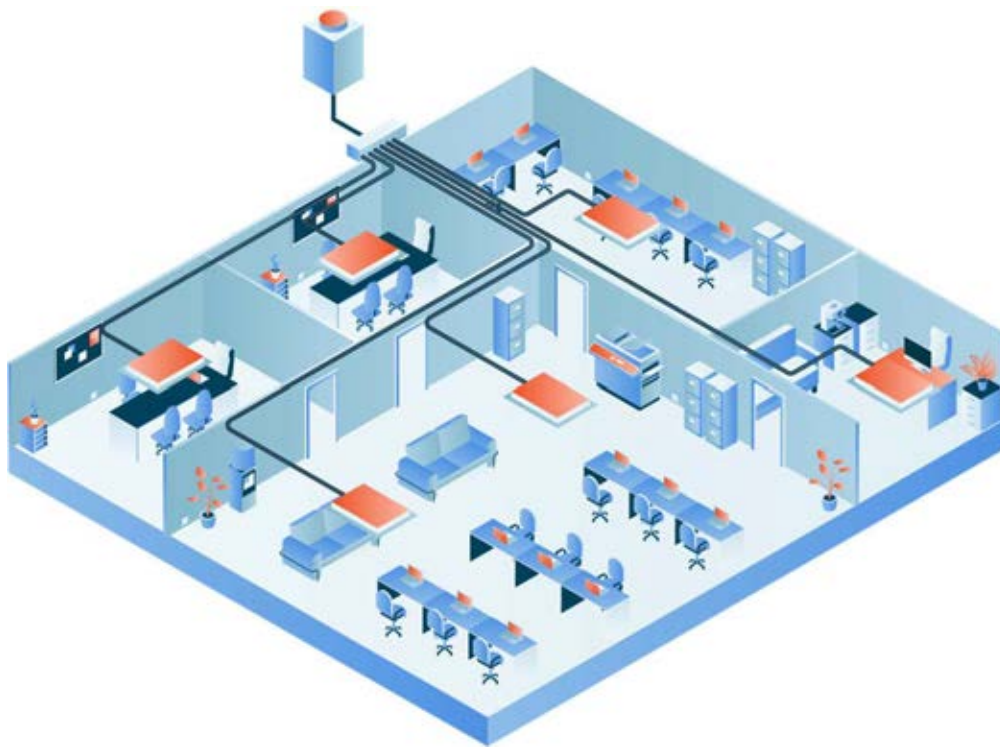


FCS Controller



CGAS-DP Detector

INDOOR AIR QUALITY IN PUBLIC BUILDINGS



TOP 2 CONSIDERATIONS:

1. Poor indoor air quality can lead to headache, fatigue, shortness of breath, lack of concentration, allergies, dizziness and illness (sick building syndrome)
2. Provide real time data to allow corrective action to improve building automation and demand-controlled ventilation systems

KEY GASES:

- Carbon Dioxide (CO_2)
- Formaldehyde (CH_2O)
- Volatile Organic Compounds (VOC)
- Particulates PM1, PM2.5 or PM10

CET PRODUCTS:

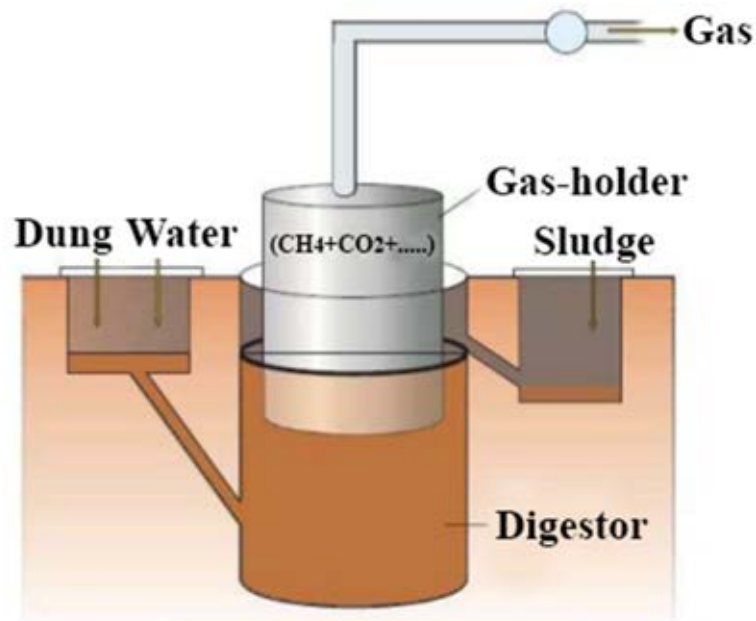


FCS Controller



CGAS-DP Detector

BIOGAS FROM DECOMPOSING ORGANIC MATTER



TOP 3 CONSIDERATIONS:

1. Biogas is produced by decomposing organic matter such as cow dung, food waste, sewage, etc.
2. Biogas consists mainly of methane and carbon dioxide. Hydrogen sulphide is also produced naturally by decaying organic matter.
3. Hydrogen sulphide is extremely flammable and highly toxic, second only to carbon monoxide as a cause of inhalational deaths.

KEY GASES:

- Methane (CH_4)
- Carbon Dioxide (CO_2)
- Hydrogen Sulphide (H_2S)

CET PRODUCTS:



FCS Controller



CGAS-DP Detector

Gracias Obrigado Merci Danke Dank je Děkuji

Dziękuję Ci Grazie Terima Kasih Dankie Teşekkür ederim

Salamat

Thank You!

Cảm ơn

ありがとう

謝謝

감사합니다

متشكراً

شكراً

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धन्यवाद

தங்க ய

Ευχαριστώ

Спасибо

Дякую

תודה