FREEDOM Xi



EXCELLENCE IN ACTION

THE NEW GENERATION OF GAS DETECTORS

TELEDYNE
Gas and Flame Detection



EXPLORE ALL
ITS FEATURES

FREEDOM Xi

THE BENCHMARK FOR CRITICAL ENVIRONMENTS

Designed for installations where downtime is not an option, the **FREEDOM Xi** represents the highest level of performance within the **FREEDOM** range.

Engineered for hazardous and potentially explosive atmospheres, and certified **SIL2 / SC3**, the **FREEDOM Xi** combines functional safety, embedded intelligence, and operational continuity.

Built on Teledyne's proven expertise, it delivers reliable gas detection in the most demanding industrial environments while helping optimize long-term operational performance.

The **FREEDOM Xi** is ideally suited for:

- Refineries and petrochemical facilities
- Power generation and energy distribution
- Heavy industry
- 24/7 critical infrastructure
- Highly regulated industrial sites

When gas detection becomes strategic, the FREEDOM Xi is the obvious choice for critical industrial environments.



A DETECTION TECHNOLOGY FOR EVERY RISK

Because every site presents unique challenges, the **FREEDOM Xi** offers a wide range of detection technologies suited to specific hazards and environmental conditions.

Whether monitoring toxic gases, oxygen depletion or enrichment, CO_2, or refrigerants, the **FREEDOM Xi** provides the most appropriate sensing technology: electrochemical or Rock Solid cells, infrared or semiconductor sensors.

Each sensing cartridge is pre-calibrated for fast, tool-free commissioning and optimum accuracy from day one.

This modular approach enables the **FREEDOM Xi** to adapt to virtually any industrial environment.

The **FREEDOM Xi** features a single universal mainboard compatible with all detection technologies and gas types.

TECHNOLOGY \ GAS	Flammable	Toxic	Oxygen	CO2	Refrigerants
Catalytic Oxidation	✓				
Infrared Absorption	✓			✓	✓
MEMS	✓				
Electrochemical		✓	✓		
Rock Solid		✓			
Semiconductor		✓			
PID*		✓			

* Currently under development

A CLEAR AND INTUITIVE INTERFACE

The **FREEDOM Xi's** interface is designed for intuitive operation with no need for specialized tools or complex procedures. Its multicolour TFT display provides comprehensive information at a glance, including real-time readings, detected gas, measurement units, live trend graphs and text-based configuration menus.

Smooth navigation across the menus is achieved using **four** magnet-activated **buttons**, eliminating the need to open the housing in hazardous areas.

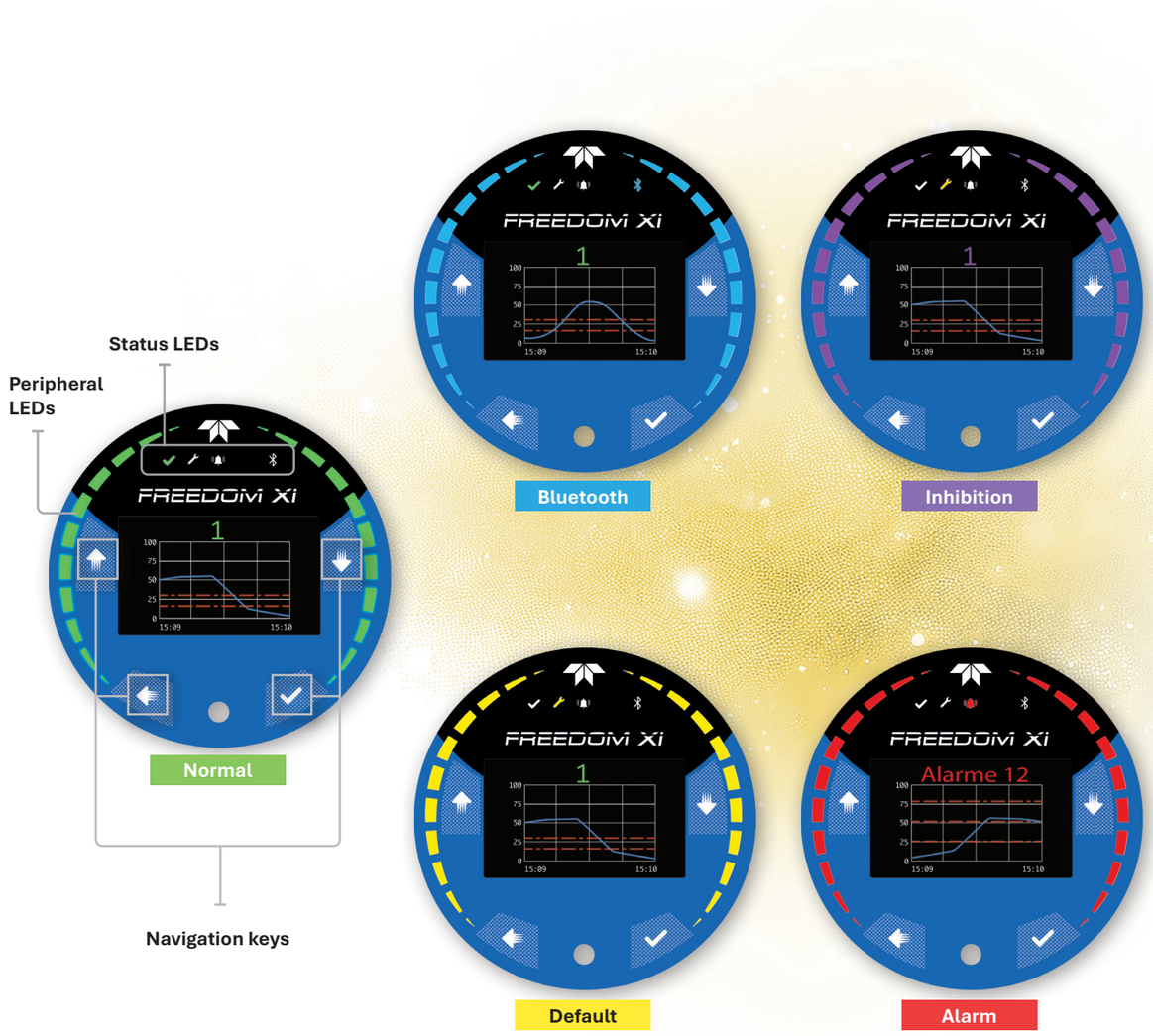
Peripheral LEDs surrounding the display provide clear, long-distance visibility of the **FREEDOM Xi's** status and interactions, even in bright ambient light.

At a glance, operators can identify whether the unit is operating normally, in fault or alarm condition, or connected via Bluetooth to the GF Sync app.

Overall, the interface is designed to simplify operations and enhance user confidence in the field.

A DISPLAY DESIGNED FOR HARSH ENVIRONMENTS

In extreme temperatures, the optional LCD display enables operation across a wide temperature range, from -40°C to +75°C.



EXCLUSIVE HOTSWAP FUNCTION UNINTERRUPTED CONTINUITY

The **Hotswap** functionality, unique on the market, enables the replacement of the sensing cartridge (for toxic and flammable gas detection) while the device remains powered, without affecting the FREEDOM certification for hazardous areas.

- **No hot work permit required**
- **No power shutdown**
- **No process interruption**

In critical environments, every minute matters. This unique capability ensures complete operational continuity, even during maintenance activities.



REMOTE SENSOR HEAD AND DUAL DETECTION

With its **remote sensor head** and **Dual Detection** capability, the **FREEDOM Xi** adapts to the constraints of any industrial site.

The **remote sensor head** allows the sensing element to be installed up to **30 metres (100 ft)** from the transmitter.

The **Dual Detection** function enables two measurement points to be monitored using a single device.

Less equipment. Less cabling. Greater flexibility. A solution designed to optimise installation while maintaining the highest level of performance.



DESIGNED TO OPTIMISE TOTAL COST OF OWNERSHIP (TCO)

The **FREEDOM Xi** solution simplifies both operation and maintenance. Its **single universal PCB** streamlines part number and inventory management, while replacement of the **sensor cell only**-rather than the entire cartridge-significantly reduces consumable costs.

In addition, its exclusive **live replacement capability in hazardous areas** minimises downtime and ensures continuous operation.

Teledyne GF Sync

CYBER RESILIENCE BY DESIGN

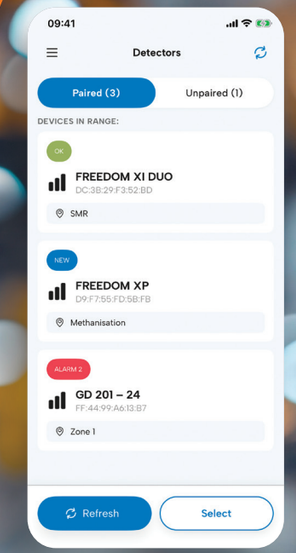
GF SYNC
THE APP THAT MAKES DETECTION EASIER

Available free on the App store and Google Play, the GF Sync app revolutionizes gas detector management by providing instant access to all essential functions, while unlocking the full capabilities of the **FREEDOM Xi**:

- **Quick configuration**: set up your detectors in just a few clicks and save the configurations for easy, error-free replication.
- **Simplified calibration**: perform reliable and fully traceable through a guided, step-by-step process.
- **Optimised maintenance**: access event history, monitor sensor diagnostics and facilitate plan maintenance schedules proactively.
- **Digitalised monitoring** : automatically generate calibration certificates that can be exported as .pdf or .csv files.
- **Enhanced cybersecurity**: secure, encrypted communications, compliant with the latest and most stringent cybersecurity standards.

With GF Sync, deployment and operation become faster, safer and more efficient. **Your safety, at your fingertips**.

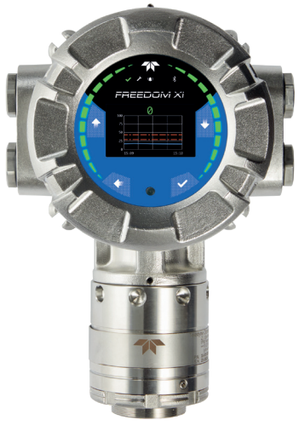
Download the app for free







TELEDYNE
Gas and Flame Detection







A MODULAR DESIGN TO SUIT EVERY NEED

Because every industrial environment has its own specific constraints, the **FREEDOM Xi** offers a wide range of options to tailor detection to any configuration. This flexibility ensures seamless integration into all existing systems, whether simple or complex.

Choose, configure, customise:

- **Remote sensing head**

  The sensor can be installed up to 30 metres or 100 feet from the transmitter, facilitating installation in hard-to-reach areas.

- **Communication**

  Analog Output 2- or 3-wire configuration depending on the detection technology.
  Sink or Source options
  Adjustable 0–4 mA range
  Isolated 4–20 mA analog output (optional).
  Modbus RS485 digital output (optional).
  Configurable 4–20 mA analog input (optional).

- **On-board relays**

  Three configurable alarm relays, one fault relay and an acknowledgement input for standalone local operation.





- **Display**

  TFT display with direct access to multilingual menus, trend curves, and detection data.

  Multicolour, backlit LCD display for installation in the most demanding climatic environments.

  Display-free versions with status LEDs.

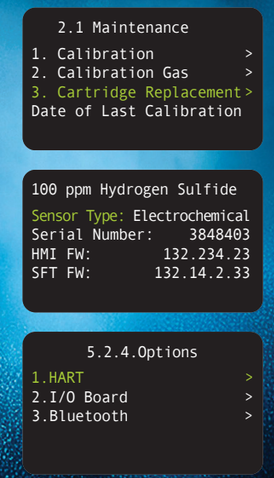
- **Universal detection cartridge**

  All cells and sensors are compatible with the same main circuit board. This simplifies maintenance and reduces the number of part numbers.

  This modularity makes the **FREEDOM Xi** a universal solution, adaptable to any architecture, any industry and any security requirement.

- **Dual Detection**

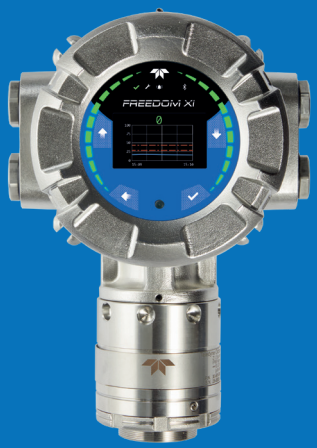
  Connection of two sensing cartridges to the **FREEDOM Xi**. All technology combinations are possible, either locally mounted or remotely installed.



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FREEDOM Xi

EXCELLENCE IN ACTION



Combining industrial-grade performance with operational simplicity, the FREEDOM Xi embodies the next generation of fixed gas detectors. Versatile, reliable and intuitive, it protects your most critical installations while helping optimise maintenance and reduce operating costs.

Designed as a future-ready platform, it enables investment in a sustainable solution today while minimising the risk of obsolescence. As a flagship Teledyne product, the FREEDOM Xi is engineered to support your operations for the long term.

FEATURES	
Detection Technologies	Electrochemical and Rock Solid™ cells, catalytic, infrared, MEMS, semiconductor sensors and PID technologies (under development)
Materials	Aluminium or 316L Stainless Steel
Ingress Protection	IP66
Operating Temperature (depending on sensor)	LCD: –40°C to +75°C TFT: –30°C to +55°C
Output signals	4–20 mA analogue output, 2-wire or 3-wire, HART® 7
Relays (optional)	3 alarms + 1 fault
Digital Output	Modbus (optional)
User Interface	Multicolour TFT or LCD display, high-visibility LEDs, 4 magnet-activated buttons
Maintenance	Simplified through the GF Sync application (Bluetooth SIG, BLE 5.0, encrypted communication)
Installation	Local or remote sensor head Single or dual cartridge configuration
Certification	ATEX, IECEx, FM (pending)
Functional Safety	SIL2 / SC3 High Demand (pending)

CONTACT US

TELEDYNE
Gas and Flame Detection

GF30645A-EN - Teledyne Gas and Flame quality assurance programmes demand the continuous assessment and improvement of all our products. Information in this leaflet could thus change without notification and does not constitute a product specification. For more information, please contact us or your company representative.