

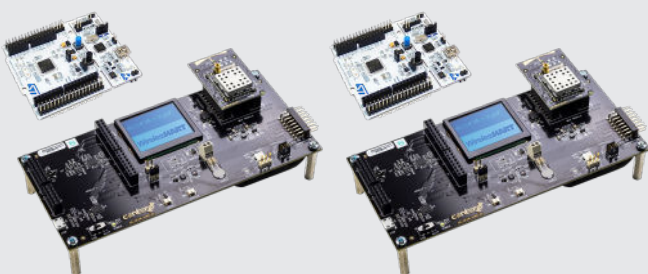
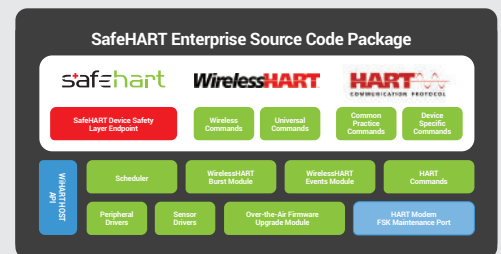
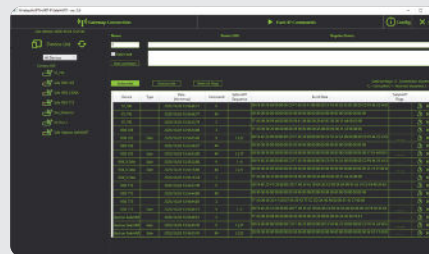
Wireless**HART**

safehart centero

SafeHaRT™ Rapid Development Kit Product Brief

PRODUCT OVERVIEW – Centero’s SafeHART™ development kit includes everything needed to develop SIL2 and SIL3 capable WirelessHART™ (IEC 62591) certified field instruments with minimal development effort. The SafeHART™ safety protocol builds on the widely deployed HART, WirelessHART and HART-IP standard and enables safe digital communications between field instruments and safety instrumented systems. It is a user friendly, development platform that includes source code for the entire end-to-end SafeHART™ protocol safety layer for both the Device Safety Layer Endpoint that runs in the field instruments as well as a HART-IP™ client application that runs the Client Safety Layer Endpoint. It also includes pre-configured and fully integrated hardware, firmware and software components. The WirelessHART™ (IEC 62591) industrial IoT standard provides a robust wireless protocol for the full range of process measurement, control, and asset management applications. Based on the proven and familiar HART™ protocol, it enables users to quickly and easily gain the benefits of wireless technology while maintaining compatibility with existing devices, tools, and systems.

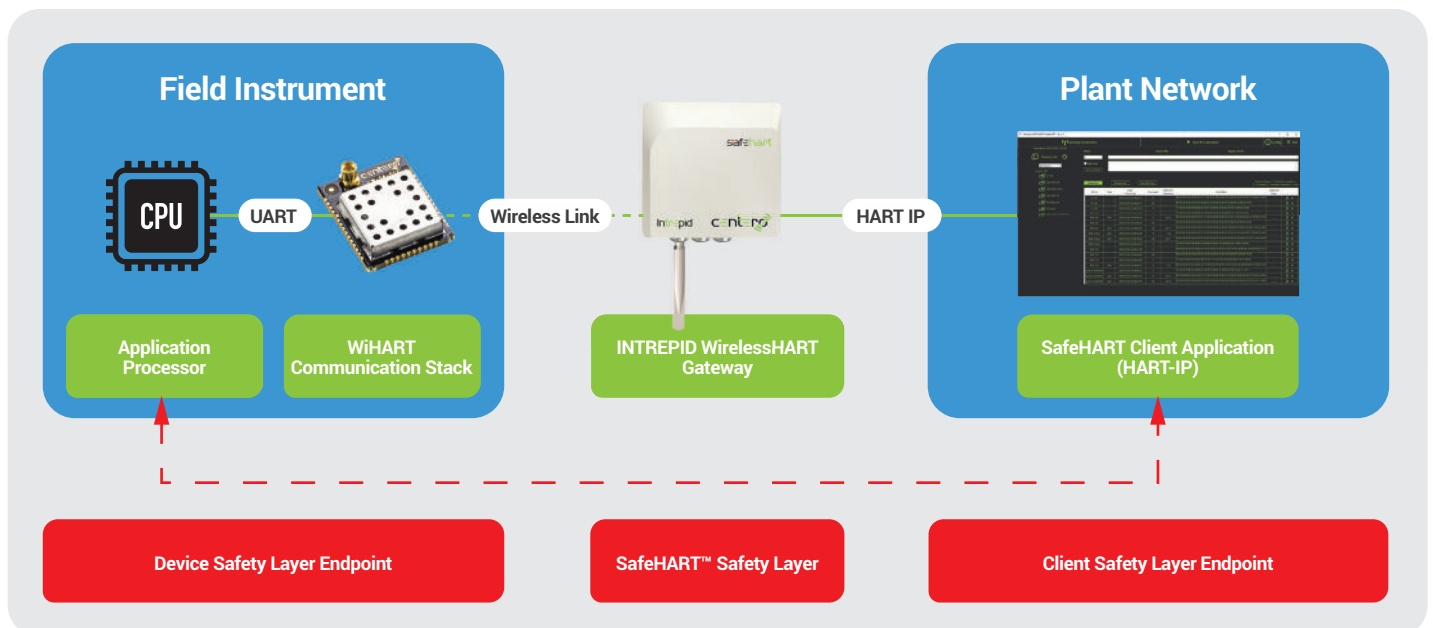
NOTE: The SafeHART™ development kit builds on and inherits all features of Centero’s WiHART WirelessHART development kit. For a description of the features, components and functionality please consult the WiHART WirelessHART Development Kit Product Brief.



Product Highlights

FEATURE	BENEFIT
Develop SIL2/SIL3 Capable Devices and Safety Instrumented Systems	Includes source code for the entire end-to-end SafeHART™ digital safety layer protocol and all building blocks needed to develop SIL2/SIL3 capable HART/WirelessHART™ field instruments and Safety Instrumented Systems.
Device Safety Endpoint	Source code package for the Device Safety Layer Endpoint that runs in the field instrument.
Client Safety Endpoint	Source code package for a SafeHART™ compliant HART-IP based client application that can be included in Safety Integrated Systems and safety controllers.
Supports Safety and Traditional Field Instruments	Support for mixed safe and non-safe digital communications in the same field instrument reference implementation.
HART 7.9 Compliant	Compliant to Fieldcomm's HART 7.9 specification that includes significant enhancements for safety applications.
Bandwidth Allocation Tailored to Safety Applications	Includes INTREPID SafeHART™ Gateway and WirelessHART communication stack enhanced to support safety applications.
Based on Centero's WiHaRT development platform	Inherits all features, functionality and components of Centero's WiHaRT development platform.

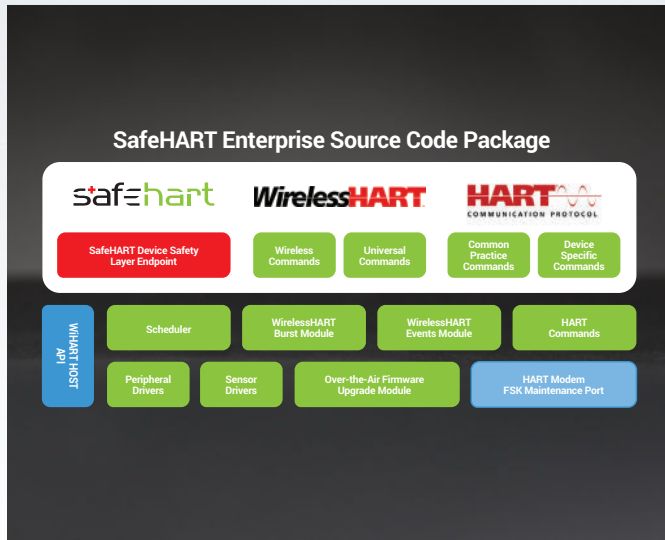
SafeHART™ Development Platform Architecture



Safety application have rigorous requirements for the communications and connectivity between the safety controllers and the field safety instrumentation. Strict reliability, timeliness and availability requirements

need additional mechanisms that ensure data packets arrive at the designated destination within a well-defined timeout window and within a certain order.

Development Kit Components



APPLICATION PROCESSOR SOURCE CODE

Reduce SafeHART™ field instrument development time by 6 – 8 months

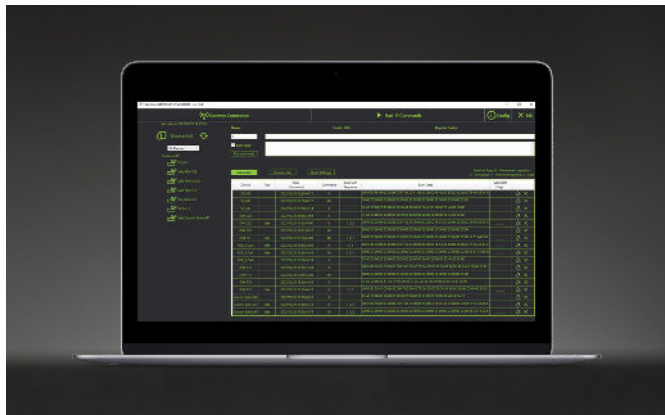
Application processor code includes SafeHART™ compliant protocol layer implementation for Device Safety Endpoint

Also includes full WirelessHART™ compliant instrument implementation

Includes all features present in the WiHART Enterprise Source Code Package

Support for mixed safe and traditional field instruments

Develop your own field instrument firmware using the IDE of your choice



SAFEHART™ HART-IP CLIENT APPLICATION SOURCE

Source code for Client Safety Layer Endpoint

Includes discovery of SafeHART™ field instruments running in the network

Includes all SafeHART™ mechanisms as well as flags

HART-IP based client application source code compliant to Fieldcomm's HART 7.7 specification

Can be included in safety controllers or to develop vendor specific client application



INTREPID SAFEHART™ WIRELESSHART GATEWAY

WirelessHART™ compliant Network/Security Manager, Gateway and Access Point

Support for both SafeHART™ and traditional WirelessHART field instruments

Bandwidth allocation tailored for SafeHART™ instruments to meet safety requirements

Native display for SafeHART™ wireless instruments

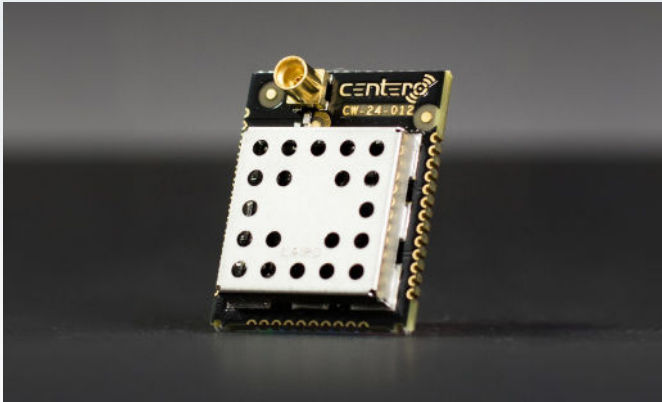
Supports data traffic with strict latency requirements

Over-the-air upgrades of all platform components

HART-IP 7.7 and MODBUS TCP interfaces for plant network connectivity

Quantity included: 1

Development Kit Components



WiHaRT WIRELESS MODULE

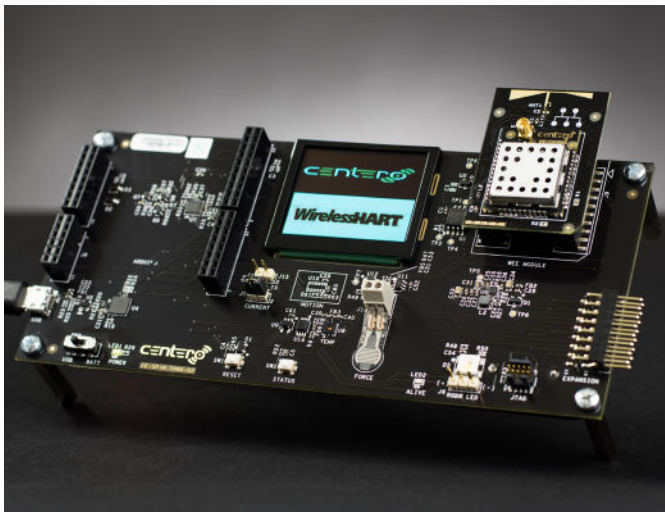
Runs WirelessHART communication stack

Enhanced WirelessHART communications stack includes additional API commands and features tailored to SafeHART™ requirements

Installed on Mikrobus compliant adaptor board

Exposes all WiHaRT module communication ports and pins

Quantity included: 2



SPiN DEVELOPMENT BOARD

WirelessHART™ compliant field instrument implementation

Includes WiHaRT wireless modules that run WirelessHART™ communication stack

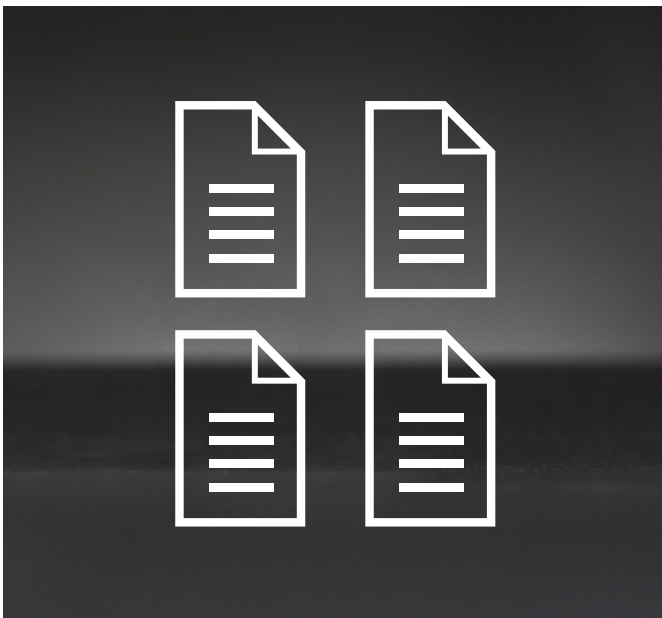
On-board sensors: temperature, humidity, LIDAR range and motion, tactile/force and RGB LED

Connect other sensors, processors or actuators via Arduino or Freedom form factor connector

Graphic OLED display for local notifications

USB, DC or battery powered

Quantity included: 2



DOCUMENTATION PACKAGE

Product Documentation

- SafeHART™ Development Kit User Guide
- SafeHART™ source code package documentation
- INTREPID SafeHART™ Gateway User Guide
- WiHaRT Radio Module - Hardware Integration Manual
- WiHaRT Radio Module – Firmware integration and various specification documents
- Engineering Utility Software - User Guide
- WiHaRT Configuration and Firmware Upgrade Process

Training Materials

- Developing WirelessHART™ Compliant Products - Training Course

Target Vertical Markets and Applications

VERTICALS

- Oil and Gas
- Petrochemical
- Paper and Pulp
- Mining
- Factory Automation
- Power Generation
- Power Distribution

APPLICATIONS AND USE CASES

- Safety applications
- Safety instrumented systems
- Gas detection instruments
- Flame and fire detection instruments
- Emergency alerting systems (EAS)
- Fire prevention
- Process Automation

Ordering Information

Product	Part Number
SafeHART™ Rapid Development Kit	SAFEHARTRDKES

Related Products

Model	Part Number	Description
WiHaRT Rapid Development Kit	WIHARTRDKES	WirelessHART Rapid Development Kit – Enterprise Source Code Package
WiHaRT Wireless Module	CW-24-012-WHx	WirelessHART Wireless Module
INTREPID NIO200HAG	NIO200HAG-C1D2	INTREPID WirelessHART Field Gateway, Wi-Fi Mesh+ connectivity, UL C1D2 certified
INTREPID NIO200HAG	NIO200HAG-ATEX	INTREPID WirelessHART Field Gateway, Wi-Fi Mesh+ connectivity, ATEX certified
INTREPID NIO200HRDK	NIO200HRDK	INTREPID WirelessHART Field Gateway, No Wi-Fi

Centero is a provider of wireless technologies, products and services for the Internet of Things.



Centero is a privately owned technology company headquartered in Atlanta, Georgia. We are the forefront of the Industrial Internet of Things revolution which is transforming a wide array of vertical markets. Centero offers end-to-end, standards-based communication platforms that are swiftly integrated into novel or existing products.



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