



Enhancing Safety in Oil & Gas with RealWear Navigator® Z1 with Thermal Camera

Elevate safety standards to unprecedented levels in Zone 1 environments with the power of Thermal.

The RealWear Navigator Z1 with Thermal Camera is an intrinsically safe, rugged, hands-free wearable device that features the FLIR Thermal Camera Module, providing users with real-time thermal imaging capabilities.

This powerful combination equips industry professionals with unparalleled situational awareness, enabling early detection of anomalies, and proactive risk mitigation.



Use Cases



Identifying potential gas leaks or emissions

Gas leaks pose serious safety and environmental risks in Oil & Gas operations. RealWear allows workers to scan areas for temperature anomalies that indicate a leak allowing for instant action to prevent accidents and protect the workforce.



Inspecting pipelines for leaks or corrosion

By leveraging thermal imaging, workers can detect temperature variations that indicate potential leaks, allowing for early intervention, avoiding costly damage and ensuring the integrity of the pipeline infrastructure.



Monitoring equipment temperatures during inspections

Using RealWear and Thermal, workers can monitor equipment temperatures in real time without the need for physical contact, enabling proactive maintenance, reducing the risk of equipment failure, enhancing operational efficiency and safety.

Intrinsically Safe by RealWear, Thermal by FLIR

RealWear's Thermal Camera Module has been developed with Thermal by FLIR - the world's leading manufacturer of infrared products. It offers five modes including Teledyne FLIR's patented MSX®, which adds visible light details to thermal images for greater detail. Once you've got your image, you can take thermography to the next level with FLIR Thermal Studio Suite.



Specifications - RealWear Navigator® Z1 with Thermal Camera

Core platform and functions

Operating System	Android 12 (AOSP) + WearHF® hands-free interface
Chipset	Qualcomm® QCS6490
Memory	128 GB Internal Storage / 8 GB RAM
Included Applications	Document Navigator, Camera with Barcode Reader, Audio Recorder, Video Recorder, Webpage Viewer, Cloud Sync, Media Player, Calculator, Pedometer, Timer
Languages Supported	Chinese (Cantonese, Mandarin-Simplified and Traditional), Czech, Danish, Dutch, English (American, Australian, British, Indian), French, German, Indonesian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Thai, Turkish

Connectivity and sensors

Bluetooth	Bluetooth Low Energy 5.2
Wi-Fi	Wi-Fi 6 (802.11ax) and Wi-Fi 6E (6 GHz)
GPS and Location	GPS, GLONASS, NavIC, BeiDou, Galileo, QZSS, and SBAS
IMU	9-DOF (3-axis accelerometer, magnetometer, and gyroscope), software enhanced stabilization

Battery

Capacity	2550 mAh Li-Ion; removable and rechargeable (Outside of Zone 1)
Battery Life	Full shift with typical use

Physical characteristics

Weight	400.3g
Ruggedization	Intrinsically Safe (ATEX Zone 1 and CSA C1/D1), 2 meter drop tested, IP66, MIL-STD-810H
Dedicated keys	Power key, application specific action key
Ports	3.5mm audio, 1 USB-C for data and charging
Boom arm	Adjusts six ways for all head sizes, left or right eye compatible, display flips out of way when not in use
Operating Temperature	-4° F to +131° F / -20° C to +55° C

Display

Type	24° field-of-view, 24-bit color LCoS, 0.35 inch diagonal, outdoor visible
Resolution	HD (1280x720)

Audio

Microphones	4 digital microphones with active noise cancellation. Accurate noise cancellation up to 100dBA
Speaker	Internal 94dB open-air loudspeaker with a visual warning that must be acknowledged above 80dB. Standard acoustic output level is below 76dB.

Multimedia

Camera	FLIR Lepton 3.5 Thermal Sensor & integrated 48MP visual camera sensor with flashlight (removable outside of Zone 1)
Video	Up to 1080p @ 60fps, >6X zoom in HD, video stabilization. codecs: VP8, VP9, H.264, H.265 HEVC

Accessories

Included	Intrinsically Safe inline safety box charging cable, works with most RealWear Navigator accessories including mounting solutions, Intrinsically Safe hearing protection, replacement clips, and more. Single Battery Charger and Thermal Camera Module are planned future accessories. Not all accessories are rated for IS zones.
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Technical Specification - Thermal Camera Module



Certifications

Intrinsically Safe (ATEX Zone 1 and CSA C1/D1)

Thermal Sensor

FLIR Lepton® 3.5

Thermal Resolution

160 x 120

Effective Frame Rate

8.7Hz

FOV

57° (H), nominal

71° (D), nominal

Object Temperature Range

-20 to 400° C

Thermal Sensitivity (NETD)

<50mK

Spectral Range

8 to 14µm

Accuracy

High Gain Mode: Greater of +/- 5° C or 5% (typical)

Low Gain Mode: Greater of +/- 10° C or 10% (typical)

Visual Camera

Sensor

48MP Sensor

Still Image

Up to 12MP

Video

Up to 1080p, 60fps

