









WHAT SHOULD I LOOK FOR IN A PORTABLE RADIO?



The trusty portable radio has been an indispensable piece of equipment for workers in a range of industries for decades. As technology advances, so have the features available in these devices. Today, there are an abundance of options, but what do they all mean and what features should you look for in a portable radio?

Above all the features that are nice to have, the one thing that can not be compromised is trust that your voice calls will be sent and received instantly and clearly. Whether your situation calls for non-critical, business-critical or critical communications, there can be no hesitation or doubt about the reliability of your voice comms.

This guide aims to help you make smart decisions when selecting the portable radios that keep you connected and your workers safe. The key factors we'll explore in this guide include:

-  **AUDIO QUALITY**
Important calls must be loud and clear. page 3
-  **CONNECTIVITY**
What networks are available to you? page 5
-  **WORKER SAFETY FEATURES**
Nothing is more vital. page 7
-  **USER EXPERIENCE**
Is this device easy to use? page 9
-  **BUILD QUALITY**
Can your radio survive your workplace? page 11
-  **ACCESSORIES**
The right tool for every job. page 13
-  **PERSONALIZATION**
Not just another black box. page 15
-  **FUTURE PROOF**
Can your radio evolve if your needs change? page 17
-  **PEACE OF MIND**
Can you trust the device in your hand? page 19



AUDIO QUALITY

Important calls must be clear

Users of portable radios work in all sorts of environments, so what is required of radios varies – one size doesn't fit all. However, there is one aspect that is important to all users: the ability to understand communications, so clear and intelligible audio is vital to make sure important calls are heard first-time. There are several factors that influence the audio quality of a portable radio.

ENHANCEMENT OPTIONS

Be sure to explore whether a radio has any programmable options to tailor the audio to your workers environment for best performance, or the range of accessory options. Something as simple as correctly setting the microphone sensitivity or adding the right audio accessory can make a big difference!

VOCODER AND DIGITAL NOISE SUPPRESSION

The term “vocoder” is a combination of voice and encoder. Vocoders digitize the human voice, enabling it to reduce many types of background noise. Additional Digital Noise Suppression software can be applied to enhance clear speech and minimize background noise even further.

ACTIVE NOISE CANCELLATION

If you work in high-noise environments, software-based noise suppression might not be enough – you need specialized functionality to filter out background noise. Active Noise Cancellation receives voice and background noise with two separate microphones, enabling ANC to isolate background noise and significantly reduce it, so your voice comms cut through, no matter the noise.

AUDIO QUALITY (continued)

As ANC technology varies, it is important to check whether it fits your requirements; does it work in analog, digital, or both? Does the ANC feature still work when accessories are connected to your radio? When considering radios with ANC, check the specifications to make sure they fit your needs.

SPEAKER PERFORMANCE

Not all portable radios are created equally. There are differences in speaker size, wattage and output, all of which influence the loudness and clarity of a radio. When choosing a portable radio, make sure you try them out to hear the difference between individual radios so you can find out what works best for you.



All Tait radios are built to exceed international standards with excellent sensitivity, range, and crystal-clear voice functionality, and have a range of programmable functions such as microphone sensitivity level, audio balance, and equalization, that can all be tailored to the operating environment.

The Tait TP9500 and TP9600 radios feature a digital vocoder and Active Noise Cancellation to isolate and reduce background noise, ensuring only your voice comes through the powerful 3W speaker.

[Click here to learn more](#)



CONNECTIVITY

What networks are available to you?

Few things are more frustrating than not being able to communicate when you need to, as communications have never been more important than they are today. Businesses, public safety, utilities, and other enterprises rely on communications being available all the time. With rising demands for coverage, interoperability and connectivity, the ability to connect devices to each other and multiple networks is becoming more and more important.

RF PERFORMANCE

High RF performance provides radio users with extended range and high availability, as well as significantly increased resistance to interference. Choose devices and network equipment that have the best RF performance. Aspects such as selectivity and sensitivity can maximize coverage and minimize interference so that you can make and receive calls in more places.

ANALOG AND DIGITAL NETWORKS

There are several networks your portable radio can operate on, and each of these have their strengths and weaknesses – something to keep in mind when selecting your portable radio. Analog radios are more affordable, have more natural audio and no latency, but have very limited security and data capabilities, and low spectral efficiency. Digital radio such as P25 and DMR offer more data capabilities, higher security and spectral efficiency, and options to filter out background noise and screen interference to the edge of coverage, improving audio quality over greater distances.

CONNECTIVITY (continued)

MULTIMODE

Multimode radios are capable of operating on both analog radio systems and digital networks, allowing interoperability and giving you the option to have different workgroups in different modes. While most digital radios have an analog mode, not all of them can operate on multiple digital networks such as DMR Tier 2 and Tier 3, and not all P25 radios have a Phase 2 mode, so make sure you check whether a radio's multimode is right for you.

WIFI AND LTE

While quality LMR voice communications remain vital, they no longer meet every communication need. These days, many users demand a choice of devices to gain immediate access to information, and combining the strengths of bearers such as WiFi and LTE with your LMR radio network greatly extends your connectivity options.

Integrating multiple bearers allows users to communicate over radio, cellular and WiFi networks, with intelligent software automatically detecting the best available bearer networks, even changing networks during a call if the original network ceased to work – ensuring you stay connected wherever you are.



Tait portables provide industry-leading RF performance, and our dedication to flexibility ensures all our portable radios are capable of multiple analog and digital modes, and are built with open standards to ensure interoperability with other vendors and neighboring organizations.

Tait also offers software solutions to extend the connectivity of portable radios. Tait Unified Vehicle can create a network of networks, including LMR, WiFi, cellular, bluetooth, and more, enabling you to connect your portable radio through the strongest possible network.

Tait TeamPTT is a Push-To-Talk solution that provides seamless, instant communication over any available network. This solution allows your staff using radios and smart devices to participate in the same networks. Connect radio, cellular and WiFi networks to increase safety and productivity across all users.

[Click here to learn more](#)



WORKER SAFETY FEATURES

Nothing is more vital

No matter the industry you're in, safety is always a top concern. Workers who understand and trust their radios feel safer, and more confident. They know that should an accident, injury or emergency occur, they are not alone. Worker safety features, location data and alerts can operate across different networks and provide real time visibility, so you know instantly when and where help is needed.

EMERGENCY KEY

In emergency situations, making a call is not always an option. In these sorts of situations it is vital to have instant access to support, at the push of a button. A radio with an Emergency Key can instantly request assistance, allowing you to respond quickly and increase the safety of your workforce.

LONE WORKER

When this mode is on, workers will be prompted to 'check in' through their portable radios at intervals programmed by your team. If a worker does not respond within the predetermined time frame, an alarm is triggered at dispatch that they may be in danger and require assistance.

MAN DOWN

Man Down is a popular safety feature that uses a tilt sensor and timer to recognize abnormal movements or angles of a worker's radio that could indicate a fall or injury. This enables Man Down to automatically send dispatch a notification of a possible incident so they can check in and act accordingly.

WORKER SAFETY FEATURES (continued)

LOCATION SERVICES

In some industries, it is important that workers know their location or altitude, while knowing the location of people and assets is important to virtually all industries to keep staff safe. In these cases, radios with GPS functionality are essential; certain radios with GPS functionality can tell workers in the field their location via their screen, and software location solutions can show you exactly where your workers are, enhancing worker safety, and reducing incident response time.

GEOFENCING

Satellite-based navigation such as GPS allows radio networks to use automated location controlled behavior through GeoFencing, reducing the complexity of every-day tasks. Geofencing can be integrated with your radio network as a software solution to give you insight on where the radios of your workers are and alert you when they enter dangerous zones or leave zones.

Portable radios with this feature can also be programmed to independently and automatically use their own location data to trigger pre-configured actions. After you define and programme your various geographic zones and the actions associated with those, the radios will operate independently – connection to a network or location software application is not required.

INTRINSICALLY SAFE (IS)

For workers in hazardous environments, the key to getting the job done and remaining safe lies in the right communication tools. Intrinsically Safe (IS) portable radios are rigorously assessed to ensure they won't ignite explosive atmospheres in hazardous locations, even under improbable fault conditions.

There are varying levels of IS protection to match particular work environments (different types of gasses or particles, different temperatures, different densities), and various certifications for IS equipment. IECEx is the widely adopted international standard, but local regulations are also still in use.

When looking for an IS radio, check that the protection it offers is suitable for your working environment, and it carries the certification you require.



Tait is committed to best practice in worker safety, without compromise, now and into the future. Tait portables are packed with a range of safety-enhancing features, such as Man Down and Lone Worker modes, a programmable Emergency Key and GPS Location Services.

The Tait GeoFencing option of the Tait TP9000 series portables keeps your team safe with pre-programmed location-based action, such as changing networks or sending status alerts, even when they are outside your network's coverage area.

Tait Intrinsically Safe (IS) portables are engineered to operate safely in hazardous environments, so your people have communications they can depend on while they get the job done. Our IS portables meet global IS standards and are made in the internationally recognized blue color for Intrinsically Safe portables, ensuring instant recognition in the field.

[Click here to learn more](#)



USER EXPERIENCE

Is this device easy to use?

A portable radio can have the most amazing features, but these all become useless when users can't or don't know how to use them, or simply don't need them. A radio should be suited to your needs, which can range from a simple, no-frills radio without a screen or buttons to feature-rich radios with intuitive and accessible controls, bright screens and full keypads.

ERGONOMIC DESIGN

A portable radio should not be hard to operate – finding the right controls is the last thing you want to worry about when on the job. Choose a radio designed to maximize user comfort, with user-friendly controls that can be easily operated, even when visibility is low or you're wearing heavy gloves.

SCREENS AND KEYPADS

Different work environments call for different radios. Some users in small teams might require a simple radio just for voice communications, in which case a no-screen, 0 key option would be perfect. Workers in demanding industries require alerts and messages to be visible no matter the environment, and the ability to send messages as well. In cases like this, a large, high-contrast screen with display options for bright or dark environments, easily recognizable alerts and a keypad are more suitable. Whatever industry you're in, make sure your radio interface matches your requirements, so you can work safely and efficiently.

PROGRAMMABLE FUNCTION KEYS

Useful functions on a radio are useless if you can't access them easily. Assigning specific functionality to certain keys on your portable radios can significantly improve usability – important features can be made instantly accessible so they are used more often, allowing you to work more efficiently.

USER EXPERIENCE (continued)

VOICE ANNUNCIATION

When you need to keep your eyes up and focused on the task at hand while changing channels or features, a radio with voice annunciation capabilities could be just what you need. This feature will give a loud and clear voice indication when you change channels or activate functions, so you can be confident your radio is set up and functioning correctly.

ACCESSORIES

The correct accessories can complement and greatly enhance the usability and functionality of your radios, and, depending on your situation, could be anything from a carry clip to a remote speaker mic or noise-cancelling headset. For more information on accessories see the accessories section of this guide.



All Tait portable radios are designed by our innovative usability team to be ergonomic and easy-to-use in any environment, with limited keypad options for further ease of use. Our portables have 4 programmable function keys including the emergency keys, which offer different functionality depending on long or short key press.

The TP9000 and TP3 portables are lightweight radios with customizable, intuitive controls that are easy to operate while wearing gloves, with displays that provide clear visibility in any environment. The usability of all Tait portables can be further enhanced by matching them with the correct Tait accessories.

[Click here to learn more](#)



BUILD QUALITY

Can your radio survive your workplace?

There is no such thing as a one-size-fits-all radio, and different jobs and environments require different levels of ruggedness. Users that work in an office don't need a rugged or military grade radio, but police, fire, emergency services, utility workers, miners, and oil riggers face challenging conditions every day, making communications equipment that can take a beating and keep on working a necessity.

RUGGEDNESS

Users that work in demanding environments need portable radios that are reliable, resilient, and downright tough, from start to finish. To ensure this level of ruggedness, certain portable radios undergo drop and immersion tests. For the highest level of protection and build quality, look for IP-ratings that suit your work situation, shock absorbing corners to protect the radio from impact, and when you work outdoors or on the water, make sure the design of the radio is water-shedding, to maintain audio quality.

IP RATINGS

IP (Ingress Protection) ratings are a defined international standard. They indicate the level of protection your electrical device has against dust and water getting inside. The numbers that follow IP have specific meanings. The first number indicates the degree of protection against moving parts and dust getting in, and the second number defines how protected the device is from moisture.

BUILD QUALITY (continued)

Common examples for portable radios include:

- ▶ IP54 is designed to be dust and water resistant
- ▶ IP65 is designed to be dustproof and protected against water jets, 12.5L per min, 30kPa from three meters (10ft) distance for at least three minutes
- ▶ IP67 is designed to be dustproof and can be immersed in water at a depth of one meter for thirty minutes
- ▶ IP68 is designed to be dustproof and can be immersed in water at a depth of two meters for thirty minutes or a depth of one meter for two hours

When considering a radio, check that its IP rating matches your work environment.

MILITARY STANDARDS

Some radios are advertised as ‘tested to meet Military Standards’. These tests were originally designed for military devices, but are now commonly used for commercial products, and are promoted as MIL-STD or MIL-SPEC.

However, a range of varying test methods can be used to achieve Military Standards – low and high pressure, rain, humidity, salt fog, dust, high temperature and temperature shock, vibrations and shocks – but not all MIL-SPEC equipment has been subjected to all test methods.

If you’re looking for a rugged radio, be sure to look at which tests have been applied to the products you’re considering.



Tait portable radios are renowned for their toughness, and we’ve engineered our TP9000 portables to be the most rugged radios ever made, and they’ve been tested and proven to survive even in the harshest environments. Every Tait portable is proven to meet Military Standards 810C, D, E, F, and G.

Our TP9000 radios have been crushed by tanks, dropped by drones, tossed in the ocean, and even run through a dishwasher – and they still work afterwards. You can see our radios put to the test at www.taitradio.com/taittough

[Click here to learn more](#)



ACCESSORIES

The right tool for every job

Accessories can play just as important a role in effective communications as radios do. Using a high-quality radio is pointless if the microphone, speaker, battery or carry option is not suited to your role or environment. The correct accessories can complement and greatly enhance the usability and functionality of your radios, which can be vital in high-risk environments.

POWER OPTIONS

Even the best radios in the world are rendered useless without a battery that lasts through a shift, or suitable charging options to keep users connected over long shifts. It is important to remember that higher capacity is not always better; it can make the radio bulkier and heavier than necessary. When choosing a radio make sure it is energy efficient, the shift life of a battery matches your needs, and you have adequate means of recharging batteries while on the go.

CARRY OPTIONS

In stressful or challenging environments, radio attachment is not something you want to think about. Avoiding interference with day-to-day tasks is critical for active staff. For optimal comfort and accessibility, choose a carry accessory that makes the radio easy to wear, easy to access and release, and protects your radio so it stays in good working order.

ACCESSORIES (continued)

AUDIO ACCESSORIES

When you need to clearly hear an incoming call, one option is to just turn up the volume on your radio – but this is not always practical. Different situations and environments call for different accessories:

- ▶ Noise-cancelling accessories such as mics or headsets can help you hear and be heard better in noisy environments, if your radio does not have this feature built in.
- ▶ Remote Speaker Mics are light-weight and can be worn in a more accessible spot, giving you greater freedom of movement.
- ▶ Earpieces can keep calls more discreet if you need more privacy.
- ▶ Covert accessories such as finger-worn Push-To-Talk buttons allow you to keep your communications hidden.

WIRELESS OR BLUETOOTH® ACCESSORIES

In certain situations, holding a portable radio to communicate just doesn't make sense. If your line of work calls for hands-free, wireless communication options, look for a radio that has Bluetooth® connectivity. Bluetooth® accessories can then be wirelessly connected to radios, so you can communicate with your team whilst keeping your hands free and eyes on the job at hand.

INTRINSICALLY SAFE (IS) ACCESSORIES

If non-IS accessories are used with IS radios, the radio system is not Intrinsically Safe, so only approved IS accessories can be used with IS portable radios. IS ratings must be 'matched', and the lowest approval level determines the overall IS radio system approval. Make sure you review the IS ratings of any accessories and match them to your IS radio to ensure your IS radio system has the appropriate level of protection.



At Tait, we are passionate about quality products, and this guides the selection and development of the accessories we offer. We build and design our products to meet the exacting standards of critical communications, so you can be sure that your people have the right tools to do their job safely and efficiently in any situation.

Be it batteries, carry cases, mics, headsets or antennas for DMR, P25 or analog radio networks, Tait has the ideal accessory to optimize your critical communications experience.

Tait also offers Intrinsically Safe (IS) accessories with limited electrical and thermal output for safe use in flammable environments. Please note that only Tait approved IS accessories can be used with Tait IS portable radios.

[Click here to learn more](#)



PERSONALIZATION

Not just another black box

Reliable, resilient, functional, efficient. These are all requirements for the workplace communications tools you need. But what about personalization? Does the radio need to be visible? Need to identify talk groups or add functionality? Or perhaps you want to label individual radios? There are many reasons why organizations need flexible, personal radios.

HIGH VISIBILITY

Traditionally, portable radios are black. That may be handy if you need to be discrete, but more often than not, black radios just cause frustration and waste time when they cannot be found. So although it sounds trivial, having a choice of colors is important. High visibility radios are the safest when on a construction site or mine site for example, where you need to be able to locate your radio at all times.

DIFFERENT CONFIGURATIONS

Portable radios that come in a variety of colors are functional, too. Different teams within organizations often have their own unique communications requirements, and their radios may be programmed with different channels, talk groups, or functions according to their needs. Assigning a different color to each person or team helps them identify the portable with the right functions for their duties.

PERSONALIZATION (continued)

CUSTOM LABELING

Radio labels are an easy, affordable, and completely customizable way to manage your fleet. Labels can contain any information that helps to identify the radio. This information makes fleet management easier if the radio is lost, or you need to know where a particular portable is, and who is using it. Labeling also makes it easier to track performance of individual units, and users can be held accountable if damage occurs.

BRANDING

Another reason to personalize your radios could be to match them to your organization's branding guidelines. This way, you can make your radios recognizable and make a statement with your brand colors, or promote your organization with a logo and contact information. Some radios are even able to show your organization's logo or emblem on the start-up screen.



All Tait portable radios have color and labeling options, so you can personalize your radio fleet to your individual requirements.

Tait portable radios offer great value and maximum flexibility, available in P25, DMR and analog. These ergonomic radios give you the power and flexibility to choose the color, display, keypad, and personalization options for each radio. This means you can create radios that are unique to your organization, talk groups, or even specific individuals. Further personalize your Tait radio to perfectly support your role and environment with your choice of carry and audio accessories.

[Click here to learn more](#)



FUTURE PROOF

Can your radio evolve if your needs change?

Protecting your investment is extremely important. What is sufficient today, might not meet your needs in the future. As technology keeps advancing, new features become available for portable radios. To meet the ever-changing business environment you need the flexibility to add functionality and seamless migration options to new technologies when you are ready to upgrade.

OPEN STANDARDS

When you purchase a radio, you want it to give you options to work with other equipment and evolve when necessary. Open standards like P25 and DMR offer choice; you avoid the pitfalls of proprietary hardware and software and you can operate multi-vendor radio solutions with the mix of devices, infrastructure and applications that best meets your needs. Flexible, defined interfaces avoid the risk of stranded investments.

FLEXIBILITY – HARDWARE CHANGES

Suppose you want to save costs initially, and purchase radios without a screen. But what if your organization grows and adds more working sites, or decides to partner with other organizations for communications? You would need more keys and a screen to select channels and use text messaging. If this is the level of flexibility you need, choose radios that allow you to customize them and add these features without having to buy an entire new fleet of radios.

FLEXIBILITY – SOFTWARE UPGRADES AND FLEET MANAGEMENT

When radio settings need to be changed or updated, you don't want operations to stop. For easy and efficient management of your radio fleet, choose a software solution that can configure and manage your radio fleet from a centralized location via Over The Air Programming (OTAP).

FUTURE PROOF (continued)

OTAP eliminates the need to send out a technician to program radios, or bringing radios in for reprogramming. This means you don't have to shut down operations to allow technicians access to radios, and gives you the ability to apply updates when it suits you.

There are different bearer options for OTAP. Certain radios can use the existing LMR infrastructure for reprogramming anywhere in your coverage area, but does interrupt your network during that time. Alternatively, there is OTAP over WiFi, which won't interrupt your LMR network, but does require radios to be within an nominated WiFi coverage area. If you are after OTAP functionality, choose the OTAP option that works best for you.



We understand that one size doesn't fit all, which is why we've designed our systems and software to be multimode and open standard, resulting in adaptable and customizable solutions. Tait portable radios are flexible, multimode devices with a range of options to future proof your investment.

The Tait TP3 is a highly customizable portable radio, allowing you to choose from a wide range of options to meet your requirements today, and easily add other features as your needs change over time. If, for instance, you want to change your orange radios with 4-key keypads to green 16-key keypads at any point, this is no problem. Your radio provider can easily and quickly change the TP3 cover and keypad at any point, ensuring you maximize the value and don't waste your initial investment.

Tait EnableFleet permits you to configure and manage your entire fleet of mobile and portable radios from one central location. It gives you accurate fleet information, OTAP, automated updates and more to simplify radio fleet management and increase efficiency for your organization.

[Click here to learn more](#)



PEACE OF MIND

Can you trust the device in your hand?

Portable radio users work in a range of environments, but what they all have in common is that they cannot afford any communication breakdown. Users of non-critical, business-critical or mission-critical communications, all of them need communications equipment that is totally reliable, so they can be sure their calls are heard.

When selecting portable radios for your organization, it is important to look at elements such as audio quality, connectivity, worker safety features and other factors you can find in this guide, so you can choose the right communications equipment to suit your needs.

However, this is not all: it is just as important to choose a reputable vendor that offers:

- ▶ A proven track record in delivering critical communications solutions
- ▶ Genuine support for open standards and non-proprietary solutions to give you freedom of choice
- ▶ The ability to tailor communications solutions to your needs, now and in the future, with solutions that are made to evolve, helping you get the most from your investment
- ▶ Strong local partners and support structures in place to help you when you need it

To find the perfect radio solution that matches your needs and work environment, it is important to factor in all these aspects – hardware, radio standards, a reputable vendor and strong support – so you can have total confidence in the device in your hand, now and in the future.

Tait has more than 50 years of experience in designing, manufacturing, and delivering critical communications to the public safety, transport, utilities, mining, oil and gas, and security sectors. We have gained a reputation for being the no-compromise vendor for truly open standard radio platforms. We advocate industry standards and play an active part in designing, refining and implementing those standards.

We design, develop, and deploy communications solutions for organizations that have to put their total trust in the systems and people they work with. We and our partners offer a range of solutions designed to be flexible, scalable, and operate in the most demanding situations and environments with absolute reliability and connectivity, keeping you and your partners safe.

[Click here to learn more](#)



Tait has taken every care in compiling this brochure, but we're always innovating and therefore changes to our models, designs, technical specification, visuals and other information included in this brochure could occur. For the most up-to-date information and for a copy of our terms and conditions please visit our website www.taitradio.com.

The words "Tait", "Tait Unified", "TeamPTT", the "Tait" logo and "Tait Unified" logo are trademarks of Tait International Limited.

Copyright © 2020 Tait International Limited Tait_WP_Portable Radio Selection Guide_v2