ADDRESSING CHALLENGES AND DRIVING EFFICIENCIES INTO YOUR COLD CHAIN OPERATIONS WITH MOBILITY

ZEBRA'S COLD CHAIN MOBILITY PORTFOLIO

THE CHALLENGE: ENABLING MOBILITY IN COLD CHAIN ENVIRONMENTS

While mobility has fast become table stakes in the business world for its ability to improve efficiency, reduce costs and improve customer service, workers in one area of the business are typically left out in the cold — refrigerated warehouses, freezers and outdoor yards in winter climates. Deploying mobility in these areas requires equipment that can handle not only cold temperatures, but also moving between different temperatures and different levels of humidity.

These conditions wreak havoc with the typical mobile computer, resulting in:

- **Fogging of the scan window:** When cold temperatures and wide temperature swings cause internal condensation, the scan window fogs. The scanner can no longer "see" the bar code, preventing scanning.

- **Fogging of the display:** When internal condensation fogs the display, workers can no longer easily read the screen.

- **Reduced display refresh rate:** Regardless of whether the display fogs, cold temperatures will reduce the screen refresh rate. When screens refresh slowly, users are forced to spend time waiting, instead of on task.

- **Ice buildup on the keyboard:** As condensation forms or melting ice drips down into the keyboard area when users leave the freezer, keys can freeze when users return to the freezer, making it impossible to enter or retrieve needed data.

- **Reduced battery cycles:** Cold temperatures significantly impact battery cycle times. Standard batteries will need to be swapped more frequently during a single shift, impacting productivity and capital costs. Users are forced to spend time managing batteries that could be better spent on tasks, while enterprises are forced to purchase, manage and maintain larger battery pools.

- **Internal condensation:** While the above conditions will be felt by users immediately, internal condensation that forms and remains present will cause major damage over time, resulting in increased repair requirements.

SOLUTIONS FOR EVERY COLD CHAIN ENVIRONMENT

Zebra cold chain solutions deliver the benefits of mobility to:

- Manufacturers
- Warehouses
- Distribution centers
- Third party logistics provider (3PLs)
- Travel and Transportation providers

...managing inventory in:

- Refrigerated areas
- Freezers
- Temperature controlled loading docks
- Outdoor areas, such as yards in steel manufacturing plants, sea ports and rail terminals

...or baggage on:

- Airport tarmacs
- Train and bus depot outdoor areas

As a result, cycle times are increased and worker productivity is reduced, increasing labor costs and impacting the quality of customer service. And increased device downtime erodes return on investment (ROI) and increases total cost of ownership (TCO).

In addition to mobile computers you will also need to provide wireless connectivity in these cold environments. But deploying wireless LANs in these conditions is so challenging that you might decide to extend wireless coverage only into dry goods, with batch mode operations in the cold chain. This not only increases cycle times and reduces accuracy and efficiency in the cold chain, but also complicates general operations by requiring the maintenance of two very different types of processes in the warehouse — real-time automated wireless procedures and paper-based manual processes. Alternatively, you could use an enclosure to protect indoor access points inside your cold chain environments — but this is an expensive workaround that delivers poor quality wireless network performance.

THE SOLUTION: THE ZEBRA COLD CHAIN ADVANTAGE

Zebra's cold chain mobility portfolio addresses all of these challenges, allowing you to reap the benefits of mobility in all of your cold chain environments.

Deep expertise, knowledge and experience

Designing high-performance, dependable mobile solutions for use in the cold chain requires deep technical expertise in mobile device development, plus deep knowledge of environmental and user requirements. As a long-standing leader in enterprise mobility solutions, Zebra has it all. We offer:

- Industry-leading solutions that work, not only in your environments, but also for your users
- Technical features that ensure high-reliability in any cold chain environment
- Special usability features that make it easy for workers wearing heavy gloves to easily interact with the device and application

An unmatched portfolio to improve productivity and safety in the cold chain

We understand all the different types of cold chain environments, as well as the different types of users and applications in those environments. That's why we offer the richest cold chain portfolio in the industry to meet every cold chain need. We offer:

- Rugged handheld, vehicle mount and wearable mobile computers that are built to handle the condensation that occurs when workers are constantly moving between different temperature zones.
- Access points with special features that enable deployment as well as seamless high-performance wireless coverage in both indoor and outdoor cold chain environments:

  - Plenum rating: This rating allows our cold chain access points to be installed safely indoors as well as outdoors — a rating most outdoor access points do not have. The plenum rating ensures that our access points provide the heat and fire resistance required for safe installation above drop ceilings, behind drywall and more — and will not release toxic gases in the event of a fire.

  - Permissive change ratings: The frequencies and power levels in typical outdoor access points often translate into co-channel interference indoors, reducing the performance of the wireless connection. The simple change of a checkbox in our access point management software automatically adjusts the frequencies and power levels as needed for indoor or outdoor environments, improving performance and providing compliance with FCC regulations.

Unparalleled single vendor simplicity

When you want the simplicity of one-stop-shopping, with proven end-to-end cold chain mobility solutions, only Zebra can deliver. We offer:

- A complete end-to-end cold chain mobile portfolio that is unrivaled — we are the only vendor that offers it all, from mobile computers that put data right at your workers' fingertips to access points that provide the wireless connection between your users and needed information in your backend servers.
- World-class partners to deliver applications that have been tested and validated on our mobile devices and wireless infrastructure.

THE ZEBRA COLD CHAIN MOBILITY PORTFOLIO

Mobile Computers ready for the cold

Whether your workers spend the day inside a cooler or freezer or moving back and forth between cold and warm environments, or whether they are on foot or in a forklift or other material handling vehicle, you'll find the right device for every worker in Zebra's Cold Chain Mobile Computing Portfolio.

PRODUCTS		CONDENSATION RESISTANT APPLICATIONS: REFRIGERATORS/ TEMP. CONTROLLED LOADING DOCKS	CONDENSATION-FREE APPLICATIONS: FREEZERS/ OUTDOOR YARDS/SEVERE TEMPERATURE SHOCK	SPECIAL COLD-CHAIN FEATURES
Handheld Mobile Computers				
OMNII XT15f – Arctic		❄	❄	• Temperature: -22° F to 122° F/-30° C to 50° C • Sealing: Dual IP65 and IP67 rating • Automatically controlled heated scan window for frost-free scanning • Automatically controlled heated optically bonded display to prevent fogging • Special keyboard design prevents icing and frozen keys
OMNII XT15f – Chiller		❄		• Temperature: -4° F to 122° F/-20° C to 50° C • Sealing: Dual IP65 and IP67 rating • Heated scan window for frost-free scanning • Special keyboard prevents icing and frozen keys
MC9200 MC9190-G		❄		• Temperature: -4° F to 122° F/-20° C to 50° C • Sealing rating: IP64 • Internal desiccant pack to absorb moisture
Vehicle mount mobile computers				
VH10f		❄	❄	• Temperature: -22° F to 122° F/-30° C to 50° C • Sealing rating: IP66 • Temperature sensors and heater control circuitry to switch heaters on/off when required • Three internal heaters that are automatically controlled by temperature sensors: touchscreen heater prevents external condensation on the display; motherboard and keyboard logic board heaters prevent internal condensation • Elastomeric keyboard that works despite icing, with drain holes that prevent heavy icing
VC70N0		❄	❄	• Temperature: -22° F to 122° F/-30° C to 50° C • Sealing rating: IP66 • Internal desiccant pack to absorb moisture; humidity sensor automatically creates an alert when the pack requires changing • Automatically controlled heated touchscreen to prevent external condensation
Wearable computers and scanners				
WT41N0 w/ freezer pouch		❄	❄	• Temperature: -22° F to 122° F/-30° C to 50° C* • Sealing rating: IP54 • Specially designed freezer pouch prevents condensation, while allowing easy keyboard data entry and connection of peripherals
RS419 Ring Scanner		❄	❄	• Temperature: -22° F to 122° F/-30° C to 50° C • Sealing rating: IP54 • Ring-style accessory for the RS419 brings extraordinary comfort and hands-free efficiency to bar code scanning
Accessories				
RCH51 Rugged Cabled Headset		❄	❄	• Temperature: -22° F to 122° F/-30° C to 50° C • Sealing: IP67 • Enables voice-directed applications in cold chain environments

* The WT41N0 freezer pouch is required to achieve -22° F to 122° F/-30° C to 50° C temperature rating.

THE ZEBRA COLD CHAIN MOBILITY PORTFOLIO

Access Points ready for the cold

For workers who spend their days inside freezers or outdoor areas in winter climates, our access points

provide the solid, dependable wireless connection they need to maximize efficiency and task accuracy.

PRODUCTS	INDOOR FREEZER INSTALLATION	OUTDOOR INSTALLATION	SPECIAL COLD-CHAIN FEATURES
Full service access points — Premium high-capacity multi-function access points with the most features and highest bandwidth; can provide multiple simultaneous services, including wireless access for large volumes of users as well as WAN backhaul, high speed Mesh, rogue intrusion detection and more.			
AP 7161	❄	❄	• Tri-radio 802.11n outdoor access point: • Temperature: -40° F to 158° F/-40° C to 70° C • Sealing: IP67 rating • Corrosion resistant enclosure • ASTM B117 salt, fog and rust resistant • 150 mph wind rating
AP 7181		❄	• Dual-radio 802.11n outdoor access point: • Temperature: -40° F to 131° F/-40° C to 55° C • Sealing: IP67 rating • Corrosion resistant enclosure • ASTM B117 salt, fog and rust resistant • 160 mph wind rating
High performance access points — Mid-tier high-capacity access points that can be managed individually or through a controller, ideal for small to mid-size businesses as well as large enterprises with a moderate number of users.			
AP 6562	❄	❄	• Dual-radio 802.11n outdoor access point: • Temperature: -22° F to 140° F/-30° C to 60° C • Sealing: IP67 rating • Corrosion resistant enclosure • ASTM B117 salt, fog and rust resistant

IMPROVE EFFICIENCY AND ACCURACY IN YOUR COLD CHAIN TODAY WITH THE ZEBRA COLD CHAIN ADVANTAGE. FOR MORE INFORMATION, PLEASE VISIT WWW.ZEBRA.COM/WM-COLDCHAINSOLUTIONS

WHEN COLD-READY IS ALL YOU NEED

There may be areas of your cold chain operation where condensation is not an issue — where workers are not constantly moving in and out of different temperature zones. Our cold-ready products are ideal in areas where workers spend their time out in the cold — such as a yard — or occasionally step briefly into a cold area.

THE ZEBRA COLD-READY MOBILITY PORTFOLIO

RFID HANDHELD MOBILE COMPUTERS	
MC9190-Z	• Supports UHF RFID • Temperature: -4° F to 122° F/ -20° C to 50° C • Sealing rating: IP64
Omni XT15	• Supports HF or LF RFID • Temperature: -4° F to 122° F/ -20° C to 50° C • Sealing rating: IP67 and IP65

HANDHELD BAR CODE SCANNERS	
LS3408-ER/I	• 1D scanning • Temperature: -22° F to 122° F/ -30° C to 50° C • Sealing rating: IP65
LS3578-E	• 1D scanning • Temperature: -4° F to 122° F/ -20° C to 50° C • Sealing rating: IP65
DS3500 Series	• 1D/2D scanning • Temperature: -4° F to 122° F/ -20° C to 50° C • Sealing rating: IP65

TWO-WAY RADIOS	
XPR7550*	• Temperature: -22° F to 140° F/ -30° C to 60° C • Sealing rating: IP57
XPR7350*	• Temperature: -22° F to 140° F/ -30° C to 60° C • Sealing rating: IP57

* Requires optional freezer-rated Lithium Manganese Battery (LiMn) PMNN4435 (available late 2013)

OUR COMPLETE END-TO-END COLD CHAIN MOBILE PORTFOLIO IS UNRIVALED

From wearable mobile computers for hands-free picking in the freezer to handheld and vehicle mount mobile computers, plus access points that can be installed in the freezer and outdoors...

WE ARE THE ONLY VENDOR THAT OFFERS IT ALL.

ABOUT ZEBRA

End-to-end mobility solutions for deployment simplicity and success

Zebra Technologies Corporation is a global leader respected for innovation and reliability. Zebra offers an extensive range of asset-tracking technologies incorporating mobile computing, data capture, barcode, wireless LAN, RFID, location systems and Zatar™, the cloud-based Internet of Things (IoT) platform. These technologies make businesses as smart and connected as the world we live in. Zebra's tracking and visibility solutions transform the physical to digital, creating the data streams businesses need in order to simplify operations, know more about their business, and empower their mobile workforce.

Zebra's products and solutions are used around the world by industries including healthcare, retail, transportation and logistics, manufacturing and sports—for a variety of applications from improving patient safety; to eliminating checkout lines with mobile devices; to streamlining warehouse operations and adding a new dimension to professional sports and entertainment with real-time information.

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