

A DIVISION OF BLACK CREEK INTEGRATED SYSTEMS

REAL-TIME RFID TRACKING TECHNOLOGY

OFFICER SAFETY | INMATE TRACKING | OPERATIONAL COST REDUCTION

"This technology will change not only the way inmates live, but how staff run the institutions.

This will revolutionize prisons in California and nationwide."

LARRY COTHRAN

Executive Officer I Technology Transfer Committee

AS QUOTED IN <u>CALIFORNIA DEPARTMENT</u> <u>OF CORRECTIONS' CORRECTION NEWS</u>

OFFICER SAFETY

Officers and staff wear belt-mounted Personal Safety Device transmitting units that send a unique radio signal every two seconds. When the red

emergency button is depressed, an alarm is sent to Central Control. If an officer is "down" for longer than a pre-specified time, an alarm is automatically sent to Central Control.

Hypothetical Incident: Officer Jones has been rendered unconscious. Within seconds, an alarm rings in the Central Control Room and the closest officers are identified and dispatched. TSI PRISM™ automatically triggered the alarm when Officer Jones went down and identified where he was in the

facility as well as the names of the inmates in the area. Officer Jones was wearing a TSI PRISM™ Personal Safety Device, part of a next-generation technology providing the most advanced officer safety features ever developed. In an alarm situation, the TSI PRISM™ system tracks the officer's location at two-second intervals to ensure that help arrives as quickly as possible.

INMATE TRACKING / MANAGEMENT

Inmates wear wrist-mounted, tamper-resistant transmitting units that send a unique radio signal on a user-configurable interval. Inmate heart rate is included in the signal transmission packet for security purposes and is also monitored by the system which provides an alarm notification if a heart rate varies above or below configurable limits The unit resists removal

by the inmate, and sends an alarm if it is removed.

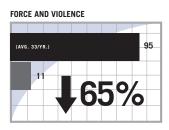
Actual Incident: In December 2001, a California inmate was stabbed in his bunk. Within minutes of discovering the wounded inmate, security staff knew who had attacked the inmate and had obtained a confession, saving hours of investigative time and money. How? By examining the data

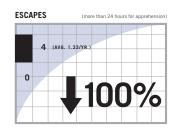
records archived by the TSI PRISM TM system to discover who was in the inmate's cell when he was stabbed.

INCIDENT REDUCTION

After TSI PRISM™ was installed in a Southern California correctional institution in November 1999, a comparison was made of data between two years before the system was installed and after one year of testing.

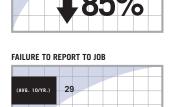
The following reductions were realized:







INDECENT EXPOSURE INCIDENTS



officers. Information is worn by inmates is waterproof archived for possible use in and tamper-proof. Each one transmits an identity-stamped investigations. radio signal every two seconds. If an inmate leaves the security YELLOW DOT perimeter, an alarm is sounded FOR INMATES at the control center. **BLUE DOT** FOR OFFICERS **NETWORK ANTENNAS** receive signals and route them to a computer. A SAFETY DEVICE is worn by officers. It has an emergency button to call for help and a function that sends an alert if the officer is in a horizontal position. **EMERGENCY**

THE ELECTRONIC BRACELET

A COMPUTER MONITOR displays the location and

BUTTON

identity of inmates and

OPERATIONAL COST REDUCTIONS

TSI PRISM™ PROVIDES:

- REAL-TIME TRACKING: An automatic head count is conducted on a user-configurable interval, including the location of each inmate, giving:
 - Administrators a powerful inmate management tool
 - A quick clearance of out-of-balance head counts
 - The option to reduce staff-intensive manual head counts
- STAFF SAFETY: Instantaneously alerts Central Control of the name and location of officers requiring assistance, the names of all inmates in the immediate vicinity and the ability to track the event in real-time, reducing response time and the costs associated with injury to an officer and subsequent investigations.
- ESCAPE DETERRENT: Enhances public safety and dramatically reduces escapes and subsequent recapture costs through:
 - Immediate alarm notification of the who, when and where of an attempted escape
 - Prevention of escapes due to early recognition of an escape attempt
 - Immediate alarm notification of the removal of an inmate unit
- BEHAVIOR MODIFICATION: Once inmates are aware of the continuous monitoring and reporting capabilities of TSI PRISM™ they are significantly less likely to engage in violent and anti-social incidents, resulting in:
 - Fewer investigative reports
 - Less property damage
 - Lower medical costs
 - Reduced workers compensation expense
- EVIDENCE: A computer archive (weeks or optionally, months) of the location of every inmate every second of every day acts as a powerful evidential tool effective in reducing litigation and the time required to track movement of contraband or pursue any other investigation.
- STAFF PRODUCTIVITY: The electronic "eyes" provided by TSI PRISM™ help staff to achieve greater productivity, reducing overtime requirements and allowing more time for activities such as drug screening, security and contraband sweeps.
- NO EXTRA STAFF REQUIREMENT: TSI PRISM[™] requires no additional hires or specialized expertise to operate. In most situations, it pays for itself in lowered expenses and increased productivity.
- INMATE HEART RATE MONITORING: Device removal or heart rate excursions above or below individually-configurable levels will cause an alarm to be annunciated on system monitoring workstations assuring immediate staff notification of anomalies.

LT. RICHARD JENKINS
California State Prison

'This system provides the best security for the staff of anything else out there, **and I** wouldn't want to run this facility without it."

ADDITIONAL BENEFITS

Each tamper-resistant inmate tracking wristband unit has a unique embedded NFC tag providing additional benefits gained from installation of the TSI Prism™ system.

The following features can be automated:

- Ingress and egress for work details or court proceedings.
- Key and radio assignment shift changes. No more searching for which officer has the keys at any given point in time.

- Time keeping for officer shifts
- Scheduling of inmates for work or classroom attendance
- Maintenance of commissary accounts
- Meal and special diet distribution
- Medication distribution

"We are pleased with the system. It gave us an early warning when an inmate took the bracelet off his wrist prior to going over the fence. It allowed us to react and apprehend him in a very short time."

WARDEN LARRY SMALLCalifornia State Prison

NELSON GRIFFIS, PHD

W.J. Maxey Boys Training School Michigan Maximum Security Facility "Our intention when we purchased the TSI PRISM™ system was to increase the safety of our staff. I also wanted to use the system's tracking capability to continuously make youth accountable for their movements. We activated the system in July 2002. Our staff safety increased and I am impressed by the accuracy of positioning data the system generated. The Prism system exceeded my expectations."

"This kind of technology will change the way prisons are run because it takes the manpower that is necessary to run a prison and makes it electronic. It converts the information of a thousand eyes. It takes away all the guesswork of investigations. Will this change almost every facet of prison life? I think so."

LARRY COTHRAN

National Law Enforcement and Corrections Technology Center | AS QUOTED IN TECH BEAT



Black Creek Model PASS-5B

TSI PRISM™ INMATE TAG WITH HEART RATE MONITORING



integrity - innovation - quality



Product Overview

With its small profile, expanded feature set, available sub-meter tracking accuracy and reduced price, the PASS-5B Inmate Tag represents a quantum leap forward in real-time inmate tracking technology.

Designed for the uncooperative wearer, the PASS-5B is constructed of engineered thermoplastic materials that will stand up to the abuse and environmental conditions typically encountered in a correctional facility providing years of dependable service.

Removal-resistant installation on the wrist is accomplished through the use of a laminated polymer strap with a stainless steel clasp that requires a special tool for installation and removal.

Installation security is provided by a biometric detection circuit that monitors and transmits the inmate's heart rate for use by the system. Device

removal or heart rate excursions above or below individually-configurable levels will cause an alarm to be annunciated on system monitoring workstations assuring immediate staff notification of anomalies

An integral NFC Tag is provided to facilitate mapping of the device to an individual inmate and for interface to third party commissary or other point-of-sale systems.

Battery life can range from 3 months to 5 years depending on transmission and heart rate monitoring intervals and is monitored and annunciated by the system. Batteries are field-replaceable using inexpensive, coin-type batteries.

Device cleaning and sanitization between uses is easily and quickly accomplished on a batch basis through the use of an ultrasonic cleaning system.

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TELEPHONE: 205.949.9900 **FAX:** 205.949.9910

MECHANICAL

Housing

- Shell Eastman Tritan™ Copolyester
- Backplate 316 Stainless Steel

Strap

- Material polyurethane with polycarbonate core
- Secured with anti-tamper locking clasp
- · One size fits all, intended to be worn by male and female inmates ages 12 and up
- Pull Test >45lbs

Total Device Weight – 1.4 oz. [39g] including strap

Integral NFC Tag- for interface to third party applications

APPROVALS

- FCC (United States)
- CE (European Economic Area) (Pending)

ENVIRONMENTAL RATINGS

- Operating Temperature Range -10° to +60° C
- IP68 Withstands dust, dirt, sand, and submersion up to a maximum depth of 1.5m for up to thirty minutes
- IK10 Resists a 5kg object dropped from 40cm
- IEC 680068-2-31 Rough-handling, shocks
- Withstands random drops to concrete of over 3 feet

COMMUNICATIONS

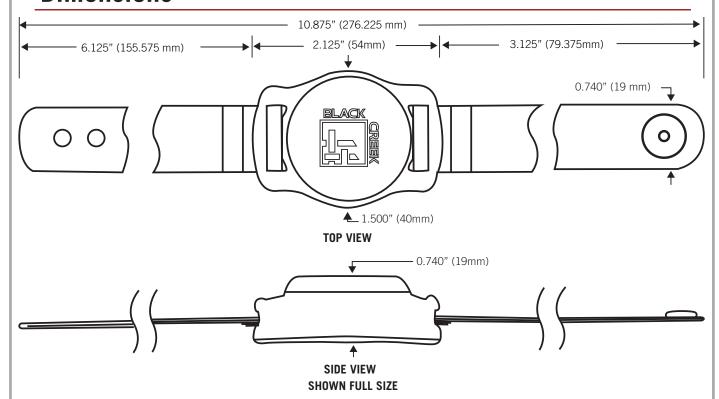
- ISM 2.4 GHz, two-way transmission
- · Back-channel programmability
- · Over-the-air upgradeable

Features

- Designed for correctional use
- Small form factor
- Sub meter tracking accuracy
- Heart Rate Monitor
- Resistant to body oils, soaps, lotions
- Rapid installation & removal
- One-time, tamper-proof, disposable clasp
 S Year expected useful life
- 3 month to 5 year battery life
- Field-replaceable batteries

- Field cleaned & sanitized
- ½ the cost of previous models
- Integral NFC tag

Dimensions



DISCLAIMER: The data provided by the PASS-5B heart rate monitor is only intended to be an estimation of the person wearing the PASS-5B monitor and may not be precisely accurate. The PASS-5B heart rate monitor is not a medical device and is not to be used or relied upon for medical purposes. The accuracy of the PASS-5B heart rate monitor is not intended to match actual medical or scientific devices and it is not intended to diagnose, treat or prevent any health issues or conditions. The person wearing the PASS-5B heart rate monitor and any third party using the PASS-5B monitor data should consult with a doctor to obtain accurate medical data.





Black Creek Model psd-5B TSI PRISM™ OFFICER TAG



integrity - innovation - quality



Product Overview

With an expanded feature set, available sub-meter tracking accuracy and reduced price point, the Black Creek TSI PRISM™ PSD-5B Officer Tag is the clear technological leader among correctional officer safety and duress products. Unlike competitive offerings that can provide only zonal duress notifications, the PSD-5B Officer Tag, in conjunction with TSI PRISM™ RTLS application software, provides real-time officer duress or man-down annunciation and officer location tracking history with an unmatched level of location precision resulting in improved officer safety and job performance.

In addition to its duress and location tracking capabilities, the TSI PRISMTM PSD-5B Officer Tag, in conjunction with TSI PRISMTM RTLS application software, also provides real-time Watch Tour functionality without the need for officers to scan

fixed location bar codes or RFID tags. Watch Tour performance compliance is documented in conventional time-stamped reports as well as in multimedia files that allow the playback of tours in a graphical, animated format.

An integral NFC Tag is provided to facilitate mapping of the device to individual staff members.

The PSD-5B's design that includes tough, ABS plastic components and a conformal-coated printed circuit board ensures a long life in a corrections environment. A heavy-duty, rechargeable lithiumion battery provides approximately three days of usage under normal operating conditions and recharge times that average less than six hours using the supplied portable charger.

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MECHANICAL

Housing

Shell – Hypo-allergenic ABS Plastic

Total Device Weight – 6oz [170 g]

APPROVALS

- FCC (United States)
- CE (European Economic Area) (Pending)

ENVIRONMENTAL RATINGS

- Operating Temperature Range -10° to +60° C
- IP44 Splash resistant
- Withstands random drops to concrete of over 6 feet

COMMUNICATIONS

- ISM 2.4 GHz, two-way transmission
- Back-channel programmability
- · Over-the-air upgradeable

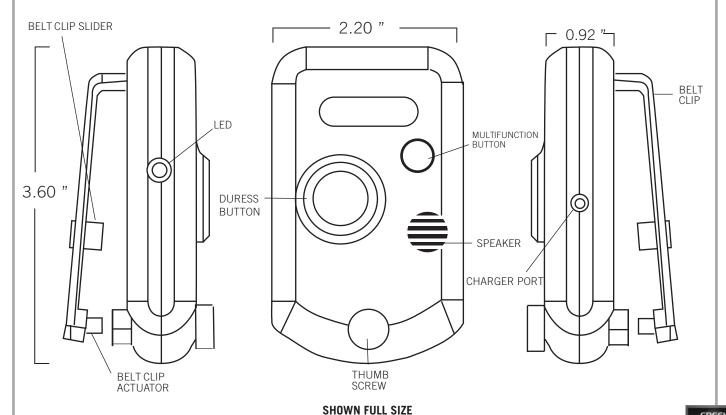
Features

- Designed for correctional use
- Mounts to duty belt sizes up to 2"
- Multifunction Button programmable, e.g. used to indicate start and completion of watch tours
- LED Indicator Indicates battery recharge required
- Integral NFC tag for interface to commissary or third party point-of-sale systems

Battery

- 3 day life with normal use.
- · Rechargeable with supplied charger
- Recharge time less than 6 hours
- Alarms
 - Duress Indicates the duress button was pressed
 - Man Down Indicates device angle greater than 60° from vertical (pre-alarm alert on device prevents false alarms)
 - Removal Indicates removal from belt
 - Low Battery Indicates imminent battery failure

Dimensions





Black Creek Model BT-5B TSI PRISM™ BADGE TAG



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Product Overview

Designed for use by correctional facility program staff and visitors, the credit card-sized BT-5B Badge Tag provides a highly cost-effective solution for monitoring the real time location and number of wearers in the facility and analyzing their movement histories.

Equipped with a built-in duress button and visual transmission indicator, the BT-5B Badge Tag's available sub-meter tracking accuracy provides

for the annunciation of duress/panic situations on system monitoring consoles with pinpoint location accuracy giving wearers both protection and peace of mind.

The BT-5B Badge Tag is maintenance-free and once turned on, has up to a 3 year useful life at 1 second transmission intervals.

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MECHANICAL

Housing

- · Shell polycarbonate ABS plastic
- · Color White

Total Device Weight – .70 oz

APPROVALS

- FCC (United States)
- CE (European Economic Area)
- RoHS

ENVIRONMENTAL RATINGS

- Operating Temperature Range -20° to +60° C
- IP67 withstands submersion up to a maximum depth of 1.0m for up to 30 minutes

COMMUNICATIONS

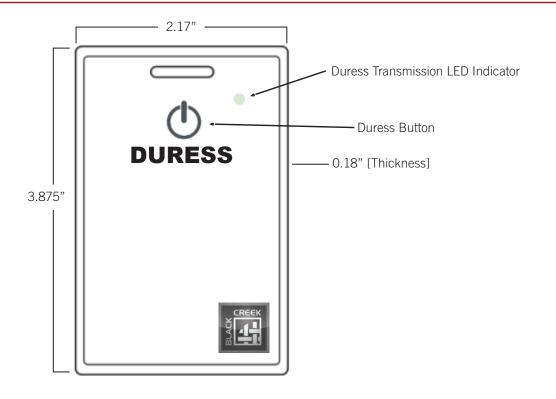
- ISM 2.4 GHz, two-way transmission
- · Back channel programmability
- Over-the-air upgradable

Features

- Credit card sized
- Designed for correctional use
- Highly cost-effective
- Integral duress button and transmission LED indicator

- ±3 year battery life at 1 second transmission intervals
- Submersible up to 1 meter for up to 1 minute
- Cutout for user-supplied lanyard

Dimensions



SHOWN FULL SIZE





Black Creek Model AT-5B TSI PRISM™ ASSET TAG



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Product Overview

The TSI PRISM™ AT-5B Asset Tag provides a highly cost-effective solution for monitoring the real time location and number of high-dollar or security-sensitive items in a correctional facility and analyzing their movement histories.

AT-5B Asset Tags are secured with stainless steel or nylon zip ties to items such as SWAT gear, key rings, weapons, or even high-dollar, stored inmate property, providing a high level of accountability. Tags may also be secured to security-sensitive devices such as kitchen sharps, barbershop shears, etc. which, in conjunction with TSI PRISMTM Application Software.

cause alarms to be annunciated on system monitoring consoles when those tagged devices move out of their designated locations.

AT-5B Asset Tags are equipped with an integral multi-function pushbutton and visual transmission indicator which can be configured in the TSI PRISM™ Application Software to annunciate messages at system monitoring consoles such as Duress, Device In Use, etc..

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MECHANICAL

Housing

- Shell ABS plastic
- Color Black

Total Device Weight - .35 oz

APPROVALS

- FCC (United States)
- CE (European Economic Area)

ENVIRONMENTAL RATINGS

- Operating Temperature Range 0° to +60° C
- IP67 withstands submersion up to a maximum depth of 1.0m for up to 30 minutes

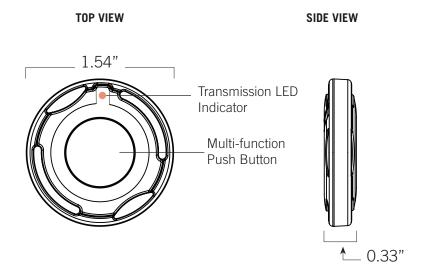
COMMUNICATIONS

- ISM 2.4 GHz, two-way transmission
- · Back channel programmability
- · Over-the-air upgradable

Features

- Compact size
- Designed for correctional use
- Highly cost-effective
- Integral multi-function button and transmission LED indicator
- ±3 year battery life at 1 second transmission intervals
- Submersible up to 1 meter for up to 1 minute
- Secures with stainless steel or nylon zip ties (supplied)

Dimensions



SHOWN FULL SIZE





Black Creek Model TT-5B TSI PRISM™ TEMPERATURE TAG



integrity - innovation - quality



Product Overview

The TSI PRISM™ TT-5B Temperature Tag provides a reliable and cost-effective method to monitor temperature-sensitive locations and provide an alarm at centralized monitoring consoles when ambient temperatures fall below or exceed preset levels. Requiring no external power, the TT-5B's internal battery provides approximately five years of life even when installed in extreme temperature conditions. Wireless connectivity between the TT-5B and the TSI PRISM™ network makes installation as simple as securing the TT-5B in the location desired to be monitored and forgetting about it. The TT-5B Temperature Tag can be installed in food freezers, coolers, refrigerated drug storage units and climate-controlled evidence storage areas providing 24/7 assurance that temperature-sensitive materials are properly stored.

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MECHANICAL

Housing

- Shell ABS Plastic
- Color Dark Grey

Total Device Weight - .35 oz

APPROVALS

- FCC (United States)
- CE (European Economic Area)

ENVIRONMENTAL RATINGS

- Operating Temperature Range -40° to +80° C
- IP65 rated as "dust tight" and protected against water projected from a nozzle

COMMUNICATIONS

- ISM 2.4 GHz, two-way transmission
- · Back channel programmability
- · Over-the-air upgradable

CPU

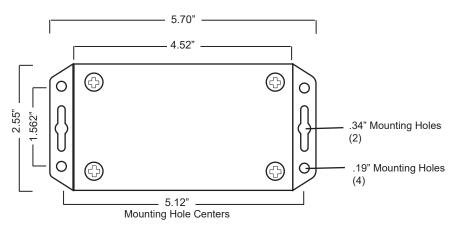
Nordic Semi nRF52832

Features

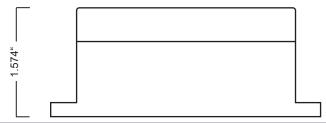
- Compact size
- Designed for correctional use
- Real Time Clock
- NFC Integrated
- Perfect for temperature-sensitive assets
- Safe against wind blown dust, sleet, rain, snow, and directed streams of water
- ±5 year battery life
- Alarms:
 - Over Temperature
 - Under Temperature

Dimensions

TOP VIEW



SIDE VIEW







Black Creek Model LR-5B TSI PRISM™ LOCATION RECEIVER



integrity - innovation - quality



Product Overview

The LR-5B Location Receiver forms the foundation of the TSI PRISM™ Real Time Locating System by serving as a sensor node (point of reception) for signals transmitted by TSI PRISM™ tags. The LR-5B's internal circuitry calculates the angle of arrival (AoA) of the tag signal and transmits that information along with the information contained in the tag's data packet out a full duplex, 100Mbit/s Ethernet port for use by the TSI PRISM™ system.

Tag information received from multiple LR-5Bs allow the TSI PRISM™ Positioning Engine to calculate tag locations in three axes with far greater accuracy than current systems that employ RSSI (Received Signal Strength Indicator) or similar positioning technology.

The LR-5B is powered by 48v Power over Ethernet or a standard Micro-USB port and equipped with a dual radio that provides the ability to wirelessly upgrade TSI PRISM™ tag firmware as well as enabling future functionality utilizing wireless communication.

The LR-5B's enclosure carries a splash-resistant IP44 rating and includes a quick-release mounting bracket and dust-resistant connection compartment with a built-in cable management system for ease of installation. An integral, multi-colored LED allows users to visually recognize and assess the LR-5B's operational status. An available vandal-resistant enclosure facilitates mounting of the LR-5B at locations within reach of inmates or where a surface-mounted conduit backbox is required.

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PHYSICAL

- Dimensions: 6.69 dia. (170 mm) x 1.22 in (31mm)
 Operating Temperature Range: -10°C +60°C
- Weight: .77lbs (350g)

POWER

- 48vPOE or 5v DC (via USB micro)
- Power Consumption: ± 1 watt

APPROVALS

- FCC (United States)
- UL (United States)
- CE (European Economic Area)

ENVIRONMENTAL RATINGS

- IP44: Splash Resistant

COMMUNICATIONS

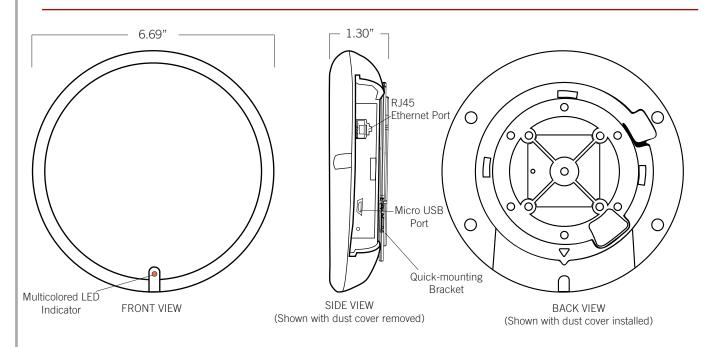
- RF Transceiver utilizing 2.4GHz frequencies
- Transmission: Bi-directional
- Modulation: GFSK
- Max. Output Power: 2.5mW
- Positioning Radio:
 - -Number of Channels: 81 (1MHz), only one at a time.
 - -Carrier Frequencies: 2401, 2402-2478, 2480MHz
- Communication Radio:
 - -Number of Channels: 40 (2MHz), only one at a time.
 - -Carrier Frequencies: 2402, 2404-2478, 2480MHz

Features

- Dual Radios allow wireless upgrades of tag firmware.
- Plug & Play Ethernet connectivity
- Dual power sources—PoE or 5V DC
- Encrypted communications with TSI Prism[™] Positioning Engine
- Quick-release mounting bracket

- IP44 Splash-resistant housing
- Dust-resistant connection compartment
- Built-in cable management system
- Integral, multicolor diagnostic LED
- Available vandal-resistant enclosure and surface mounted conduit box

Dimensions







Black Creek Model LR-5B/LD TSI PRISM™ LONG DISTANCE LOCATION RECEIVER



integrity - innovation - quality



Product Overview

Designed to provide coverage of large exterior areas, the LR-5B/LD Long Distance Location Receiver serves as a sensor node (point of reception) for signals transmitted by TSI PRISM™ tags. The LR-5B/LD's internal circuitry calculates the angle of arrival of the tag signal and transmits that information along with the information contained in the tag's data packet out a full duplex, 100Mbit/s Ethernet port for use by the TSI PRISM™ system. Tag information received from multiple LR-5B/LDs allow the TSI PRISM™ Positioning Engine to triangulate tag locations in three axes with far greater accuracy than current systems that employ RSSI (Received Signal Strength Indicator) technology.

The LR-5B/LD is powered by 48v Power over Ethernet and equipped with a dual radio that provides the ability to wirelessly upgrade TSI PRISM™ tag firmware as well as enabling future functionality utilizing wireless communication.

The LR-5B/LD's robust construction includes a dust and splash-resistant IP65 rating, an adjustable angle, stainless steel mounting bracket for ease of installation and an operating temperature range of -20° to +60° C.

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PHYSICAL

- Dimensions: 15.75 in x 12.126 in x 2.32 in (400 mm) x (308mm) x (59 mm)
- Weight: 8.81 lbs (4 kg)
- Color: Grey

POWER

- 48vPOE
- Power Consumption: ± 2 watt

APPROVALS

- FCC (United States)
- CE (European Economic Area)

ENVIRONMENTAL RATINGS

- Operating Temperature Range: -20°C +60°C
- Storage Temperature Range: -30°C +70°C
- IP65: Dust and Waterproof

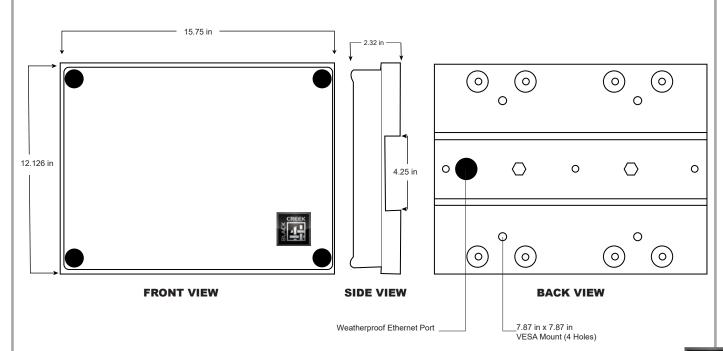
COMMUNICATIONS

- RF Transceiver utilizing 2.4GHz frequencies
- Transmission: Bi-directional
- Modulation: GFSK
- Max. Output Power: 2.5 mW
- Positioning Radio:
 - -Number of Channels: 81 (1MHz), only one at a time.
 - -Carrier Frequencies: 2401, 2402-2480, 2481MHz

Features

- Dual Radios allow wireless upgrades of tag firmware.
- Plug & Play Ethernet connectivity
- PoE Power
- Encrypted communications with TSI Prism[™] Positioning Engine
- IP65 Dust and waterproof housing
- Integrated Patch Antenna
- Adjustable, stainless steel mounting bracket

Dimensions





CALL TODAY FOR A DEMONSTRATION 205.949.9900



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