## **DATALOGIC**

## PowerScan<sup>™</sup> PBT9100 Family

Industrial Cordless Handheld Linear Imager Bar Code Reader



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#### PATENTS

See <u>www.patents.datalogic.com</u> for patent list.

See the Regulatory Addendum included with your product for additional regulatory, safety and legal information.

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#### - END -

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## NOTES

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## PowerScan<sup>™</sup> PBT9100

## Description

The PowerScan™ PBT9100 reader is a feature-rich and rugged linear imager reader. It is offered in several different models to better fit the different needs of each customer.

## **General Features**

Operating	To read a symbol or capture an image, you simply aim the reader and pull the trigger.		
Decoding	Thanks to powerful algorithms, PowerScan™ PBT9100 reader reliably decodes all major 1D (linear) barcodes. The data stream — acquired from decoding a symbol — is rapidly sent to the host. The reader is immedi- ately available to read another symbol.		
Formatting and Concatenating	The string of a decoded code may be processed according to either a simple or advanced data for- matting and be concatenated.		

## Using the PowerScan™ PBT9100

The PowerScan™ PBT9100 reader normally functions by capturing and decoding bar codes. The reader is equipped with an aiming system which helps to aim the target.



PowerScan™ PBT9100 provides an aiming system. If enabled, a partial trigger press produces a flashing scan line, which should be aimed over the code, see figure above. By completely pressing the trigger the scan line becomes continuous to start the code scanning.

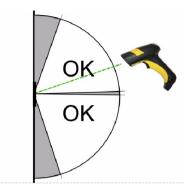
## Scan Line Position

Code scanning is performed along the scan line emitted from the reading window. This line must cross the entire code. The best reading angles are indicated in the figure below:



### **Reading Angle**

Successful scanning is obtained by tilting the reader with respect to the barcode to avoid direct reflections that impair the reading performance, see the figure below.



Symbologies with smaller bars or elements (mil size) should be read closer to the unit. Symbologies with larger bars or elements (mil size) should be read farther from the unit.

If the entire bar code is within the scan line, you will get a good read. Successful reading is signaled by an audible tone plus a good-read green spot LED indicator.

Reference the PowerScan 9100 Product Reference Guide (PRG) for more information about this feature and other programmable settings.

## **Installing the Battery Pack**

To install, charge and/or do any other action on the battery, follow the instructions in this manual.





To charge the Battery Pack, See "Charging the Batteries" on page 7.

Datalogic recommends annual replacement of rechargeable battery packs to ensure maximum performance.

Do not discharge the battery using any device except for the scanner. When the battery is used in devices other than the designated product, it may damage the battery or reduce its life expectancy. If the device causes an abnormal current to flow, it may cause the battery to become hot, explode or ignite and cause serious injury.

Lithium-ion battery packs may get hot, explode or ignite and cause serious injury if exposed to abusive conditions. Be sure to follow the safety warnings that follow:

- Do not place the battery pack in fire or heat.
- Do not connect the positive terminal and negative terminal of the battery pack to each other with any metal object (such as wire).
- Do not carry or store the battery pack together with metal objects.
- Do not pierce the battery pack with nails, strike it with a hammer, step on it or otherwise subject it to strong impacts or shocks.
- Do not solder directly onto the battery pack.
- Do not expose the battery pack to liquids, or allow the battery to get wet.

 Do not apply voltages to the battery pack contacts.

In the event the battery pack leaks and the fluid gets into your eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.





Always charge the battery at 32° – 104°F (0° - 40°C) temperature range.

Use only the authorized power supplies, battery pack, chargers, and docks supplied by your Datalogic reseller. The use of any other power supplies can damage the device and void your warranty.

Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite.

Do not place the battery in or near fire, on stoves or other high temperature locations.

Do not place the battery in direct sunlight, or use or store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.

Do not place the battery in microwave ovens, high-pressure containers or on induction cookware.

Immediately discontinue use of the battery if, while using, charging or storing the battery, the battery emits an unusual smell, feels hot, changes color or shape, or appears abnormal in any other way.



Do not replace the battery pack when the device is turned on.

Do not remove or damage the battery pack's label.

Do not use the battery pack if it is damaged in any part. Battery pack usage by children should be supervised. As with other types of batteries, Lithium-Ion (LI) batteries will lose capacity over time. Capacity deterioration is noticeable after one year of service whether the battery is in use or not. It is difficult to precisely predict the finite life of a LI battery, but cell manufacturers rate them at 500 charge cycles. In other words, the batteries should be expected to take 500 full discharge / charge cycles before needing replacement. This number is higher if partial discharging / recharging is adhered to rather than full / deep discharging.

The typical manufacturer advertised useful life of LI batteries is one to three years, depending on usage and number of charges, etc., after which they should be removed from service, especially in mission critical applications. Do not continue to use a battery that is showing excessive loss of capacity, it should be properly recycled / disposed of and replaced. For most applications, batteries should be replaced after one year of service to maintain customer satisfaction and minimize safety concerns.

Collect and recycle waste batteries separately from the device in comply with European Directive 2006/66/EC, 2011/65/EU, 2002/96/EC and 2012/19/EU and subsequent modifications, US and China regulatory and others laws and regulations about the environment.

## **Charging the Batteries**

Once the BC 90x0-BT is powered, you can charge the reader's batteries. Place the PowerScan<sup>™</sup> PBT9100 into the BC 90x0-BT cradle. The Reader LED on the cradle/battery charger turns red.

The battery is completely charged when the Reader LED on the cradle/battery charger turns green.

The battery can also be charged in the spare battery slot (BC91xx models only) or using the Multi Battery Charger accessory.



### **Changing the Batteries**

- 1. Push the button at the bottom of the handle as shown to release the battery.
- 2. Pull down to remove the battery.





Do not incinerate, disassemble, short terminals or expose to high temperature. Risk of fire, explosion. Use specified charger only. Risk of explosion if the battery is replaced by an incorrect type. Dispose of the batteries as required by the relevant laws in force.

## Programming

The reader is factory-configured with a set of standard default features. Customize your reader through use of the programming bar codes available in the PowerScan PBT9100. Check the corresponding features section for your interface, and also the Data Editing and Symbologies chapters of the PRG.

## **Using Programming Bar Codes**

This manual contains bar codes which allow you to reconfigure your reader. Some programming bar code labels, like the "Reset Default Settings" on page 9, require only the scan of that single label to enact the change.

Other bar codes require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/ EXIT bar code once to enter Programming Mode; scan the desired parameter settings; scan the ENTER/EXIT bar code again to accept your changes, which exits Programming Mode and returns the reader to normal operation.

## **Configure Other Settings**

Additional programming bar codes are available in the PRG to allow for customizing programming features. If your installation requires different programming than the standard factory default settings, refer to the PRG.

## **Resetting Product Defaults**

If you aren't sure what programming options are in your reader, or you've changed some options and want your custom factory settings restored, scan the bar code below to reset the reader to initial configuration. See the PRG for other options, and a listing of standard factory settings.



## Set Date and Time (Optional Setting)

1. Scan the Enter/Exit Programming barcode below to set date and time.



 Scan the Set Date barcode + six digits for Year, Month and Day (YYMMDD) from the Hex-Numeric Keypad on page 32.



 Scan Set Time + six digits for Hours, Minutes and Seconds (HHMMSS) from the Hex-Numeric Keypad on page 32.



 Scan the Enter/Exit Programming barcode to complete.

## Linking the Reader

## Link Datalogic RF Devices to Base

For RF devices, before configuring the interface it is necessary to link the handheld with the base.

To link the handheld and the base, press the trigger to wake up the handheld and mount it into the base. If the reader was previously linked to another base, you must first press and hold the button on the base (>5 seconds), then scan the **Unlink** bar code before re-linking to the new base.



## Linking to a Bluetooth Adapter in Serial Port Profile (Slave) Mode

- 1. Install any drivers provided with the Bluetooth adapter.
- Scan the Enable RF Link to Server label below to make the scanner visible to the host computer.
- Use the host computer's Bluetooth manager to 'Discover new devices" and select "Datalogic Scanner." If you receive an error message, it may be necessary to disable security on the device.
- Use an RS-232 terminal program to see incoming data on the port designated by the computer's Bluetooth manager.



#### Linking to a Bluetooth Adapter in HID mode

- 1. Install any drivers provided with the Bluetooth adapter.
- 2. Scan the Link to PC in HID label below..
- Use the host computer's Bluetooth manager to 'Discover new devices" and select "Datalogic Scanner." If you receive an error message, it may be necessary to disable security on the device.
- Use a text editor to see incoming data on the port designated by the computer's Bluetooth manager.





The Powerscan PBT9100 can be set up to require a PIN code when connecting. If you want to set up a PIN, or when adding new equipment to a system that uses a custom security PIN, please see the PRG for information.

## Variable PIN Code

Some Bluetooth drivers on the Host (such as WIDCOMM and BlueSoleil 8) require a Variable PIN Code. When attempting connection, the application presents a window that includes a PIN Code which is to be input using the PowerScan PBT9100. Please read the bar code "Variable PIN Code" and restart the sequence from step 2 above.

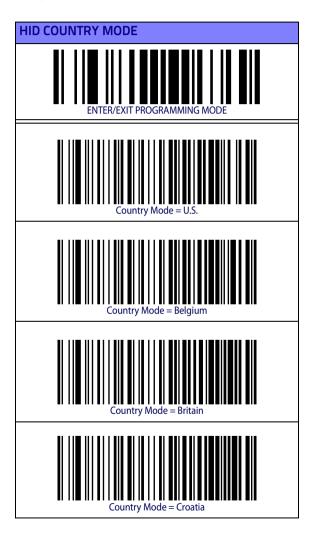


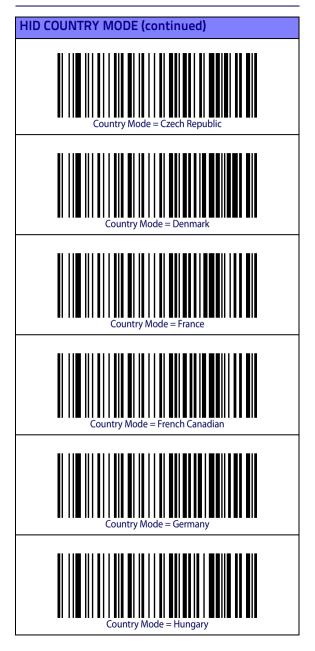
When you hear the beep and see the Green LED blinking indicating the reader is waiting for an alphanumeric entry, enter the required variable PIN Code by scanning the corresponding bar codes in the 'Hex-Numeric Keypad" section at the back of this manual for alphanumeric entry. Finish by scanning the **Exit HID Variable PIN Code** label.

# Exit HID Variable PIN Code

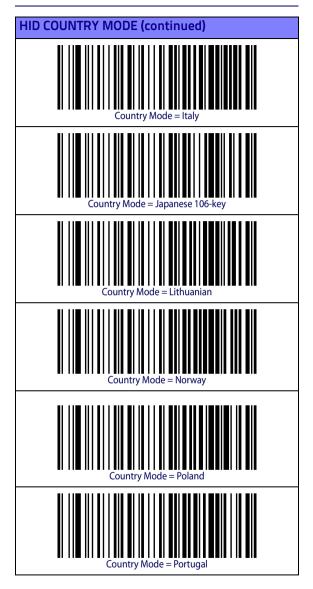
## **HID Country Mode**

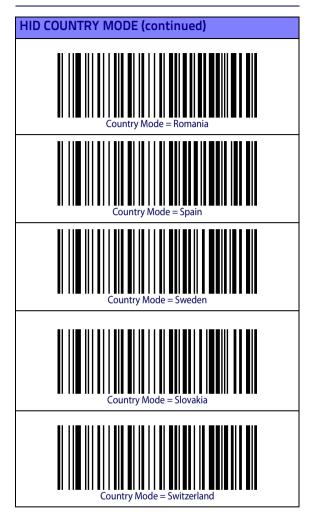
When the Reader is connected with a Bluetooth Adapter in HID mode, you may want to set the country for which your PC is localized. In order to do that, read one of the configuration command labels below.





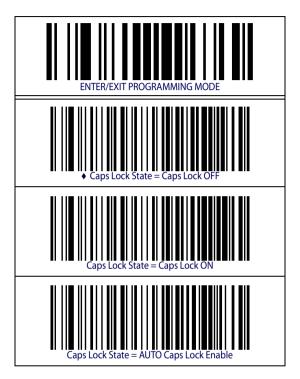
#### HID Country Mode





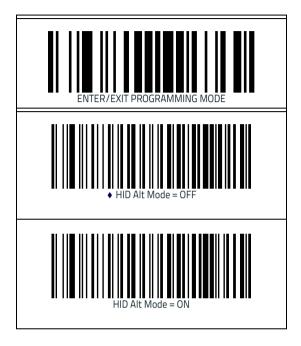
## **HID Caps Lock State**

This option specifies the format in which the reader sends character data.



## HID Alt Mode

Read the configuration command label below for the HID Alt Mode feature.



## Power Off

Scan the bar code below to shut off power to the handheld until the next trigger pull.



# Aiming Pointer Enables / disables the aiming pointer. Aiming pointer = disable Aiming pointer = enable

## **Technical Specifications**

The following tables contain Physical and Performance Characteristics, User Environment and Regulatory information.

ITEM	DESCRIPTION		
PHYSICAL CHARACTERISTICS			
Dimensions	Height: 212 mm Length: 110 mm Width: 74 mm		
Weight	405g;		
ELECTRICAL CHARACTERISTICS			
Battery Type	Li-lon battery pack		
Charge time for	4 hours with external power supply adapter <sup>a</sup>		
full charge from full discharge	Typical 10 hours with Host power (in this case no supply adapter is needed) <sup>a</sup>		
Operating auton- omy (continuous reading)	50,000+ reads		
Cradle consump- tion and DC input supply range	Volt 10-30 VDC; Power <8W <sup>b</sup> ; Max 500mA when in host/bus powered mode <sup>b</sup> .		

 Charge Times are much lower when battery is within daily typical operating condition.

b. Typical input current measured under factory default configuration.

ITEM	DESCRIPTION			
PERFORMANCE CHARACTERISTICS				
Light Source	Green LED			
Roll (Tilt) Tolerance	± 45°			
Pitch Tolerance	± 75°			
Skew (Yaw) Tolerance	± 70°			
Print Contrast Minimum	15% minimum reflectance			
Maximum Resolution	2.5 mils			
DEPTH OF FIELD (Typical) Symbology: Code 39				
5 mils	3 - 32 cm / 1.2 - 12.6"			
7.5 mils	2 - 48 cm / 0.8 - 18.9"			
10 mils	2 - 66 cm / 0.8 - 26"			
20 mils	3 - 110 cm / 1.2 - 43.3"			
40 mils	3 - 230 cm / 1.2 - 90.6"			
EAN 13	2 - 61 cm / 0.8 - 24"			

Note: the reading performances may change with different symbologies.

DECODE CAPABILITY				
GS1 Databar linear codes, UPC/EAN, UPC/EAN P2/P5 Addons, UPC/EAN Coupons, ISBN, Code128, EAN128, Code39, Code39 Full ASCII, Code39 CIP, Code 32, Codabar, Interleaved 2 of 5, IATA, Indus- trial 2 of 5, Standard 2 of 5, Code11, MSI, Plessey, Code 93, Follet 2/ 5, Code 4, Code 5, Datalogic 2 of 5, Codablock F				
Interfaces Supported	RS-232, Keyboard Wedge, and USB.			
USER ENVIRONMEN	Т			
Operating Tempera- ture	-4° to 122° F (-20° to +50° C)			
Storage Temperature	-40° to 158° F (-40° to 70° C)			
Humidity	0 to 95% non-condensing			
Drop Specifications	Scanner withstands >50 times 6.5' (2 m) drops to concrete			
Ambient Light Immunity	100,000 Lux			
Contaminants: Spray/rain, Dust/particulates	IP65			
ESD Level	20 KV			
REGULATORY	REGULATORY See the regulatory addendum for details			
RADIO FEATURES				
Frequency working center	2400 to 2483.5 MHz			
Range (in open air)				
Max number of devices per base sta- tion	. 7			

## LED and Beeper Indications

The reader's beeper sounds and its LED illuminates to indicate various functions or errors on the reader. An optional 'Green Spot" also performs useful functions. The following tables list these indications. One exception to the behaviors listed in the tables is that the reader's functions are programmable, and so may or may not be turned on. For example, certain indications such as the power-up beep can be disabled using programming bar code labels. **Table 1. LED and Beeper Indications** 

INDICATION	DESCRIPTION	LED	BEEPER
Power-up Beep	The reader is in the process of powering-up.	N/A	Reader beeps four times at highest fre- quency and vol- ume upon power- up.
Good Read Beep	A label has been successfully scanned by the reader.	LED behavior is configurable via the feature 'Good Read: When to Indi- cate" (see the PRG for infor- mation.)	The reader will beep once at cur- rent frequency, volume, tonal setting and dura- tion upon a suc- cessful label scan.
Green Spot <sup>a</sup> flashes momentarily	Upon success- ful read of a label, the soft- ware turns the green spot on for the time specified	N/A	N/A
Link Attempt	The reader is trying to link to the base	Slow Flashes	N/A
Configura- tion Align- ment	Reader and Base are align- ing the parame- ters' configuration	Fast Flashes	N/A

INDICATION	DESCRIPTION	LED	BEEPER
Link	The reader has successfully linked to the base	N/A	3 beeps of ascending fre- quency
Unlink	The reader has unlinked from the base	N/A	3 beeps of descending fre- quency
ROM Failure	There is an error in the reader's software/pro- gramming	Flashes	Reader sounds one error beep at highest volume.
Limited Scanning Label Read	Indicates that a host connec- tion is not established.	N/A	Reader 'chirps' six times at the high- est frequency and current volume.
Reader Disabled	The reader has been disabled by the host.	The LED blinks continuously	N/A

<sup>a</sup>Except when in sleep mode or when a Good Read LED Duration other than 00 is selected

INDICATION	DESCRIPTION	LED	BEEPER
Link Attempt	The reader is try- ing to link to the base	Slow Flashes	N/A
Configuration Alignment	Reader and Base are aligning the parameters' con- figuration	Fast Flashes	N/A
Link	The reader has successfully linked to the base	N/A	3 beeps of ascending fre- quency
Unlink	The reader has unlinked from the base	N/A	3 beeps of descending fre- quency
ROM Failure	There is an error in the reader's software/pro- gramming	Flashes	Reader sounds one error beep at highest volume.
Limited Scanning Label Read	Indicates that a host connection is not estab- lished.	N/A	Reader 'chirps' six times at the high- est frequency and current volume.
Reader Disabled	The reader has been disabled by the host.	The LED blinks con- tinuously	N/A

#### Table 2. Error Indicators

## **Programming Mode** - The following indications ONLY occur when the reader is in Programming Mode.

INDICATION	DESCRIPTION	LED	BEEPER
Label Pro- gramming Mode Entry	A valid program- ming label has been scanned.	LED blinks continu- ously	Reader sounds four low fre- quency beeps.
Label Pro- gramming Mode Rejec- tion of Label	A label has been rejected.	N/A	Reader sounds three times at lowest frequency and current vol- ume.

INDICATION	DESCRIPTION	LED	BEEPER
Label Pro- gramming Mode Accep- tance of Par- tial Label	In cases where multiple labels must be scanned to program one feature, this indica- tion acknowledges each portion as it is successfully scanned.	N/A	Reader sounds one short beep at highest fre- quency and cur- rent volume.
Label Pro- gramming Mode Accep- tance of Pro- gramming	Configuration option(s) have been successfully pro- grammed via labels and the reader has exited Program- ming Mode.	N/A	Reader sounds one high fre- quency beep and 4 low frequency beeps followed by reset beeps.
Label Pro- gramming Mode Cancel Item Entry	Cancel label has been scanned.	N/A	Reader sounds two times at low frequency and current volume.

## Cleaning

Exterior surfaces and scan windows exposed to spills, smudges or debris require periodic cleaning to ensure best performance during scanning.



Use a soft, dry cloth to clean the product. If the product is very soiled, clean it with a soft cloth moistened with a diluted non-aggressive cleaning solution or diluted ethyl alcohol.



Do not use abrasive or aggressive cleansing agents or abrasive pads to clean scan windows or plastics.

Do not spray or pour liquids directly onto the unit.

## **Datalogic Limited Factory Warranty**

### Warranty Coverage

Datalogic warrants to Customer that Datalogic's products will be free from defects in materials and workmanship for a period of one year from product shipment. Datalogic hardware products are warranted against defects in material and workmanship under normal and proper use. The liability of Datalogic under this warranty is limited to furnishing the labor and parts necessary to remedy any defect covered by this warranty and restore the product to its normal operating condition. Repair or replacement of product during the warranty does not extend the original warranty term. Products are sold on the basis of specifications applicable at the time of manufacture and Datalogic has no obligation to modify or update products once sold.

If Datalogic determines that a product has defects in material or workmanship, Datalogic shall, at its sole option repair or replace the product without additional charge for parts and labor, or credit or refund the defective products duly returned to Datalogic. To perform repairs, Datalogic may use new or reconditioned parts, components, subassemblies or products that have been tested as meeting applicable specifications for equivalent new material and products. Customer will allow Datalogic to scrap all parts removed from the repaired product. The warranty period shall extend from the date of shipment from Datalogic for the duration published by Datalogic for the product at the time of purchase (Warranty period). Datalogic warrants repaired hardware devices against defects in workmanship and materials on the repaired assembly for a 90 day period starting from the date of shipment of the repaired product from Datalogic or until the expiration of the original warranty period, whichever is longer. Datalogic does not guarantee, and it is not responsible for, the maintenance of, damage to, or loss of configurations, data, and applications on the repaired units and at its sole discretion can return the units in the 'factory default" configuration or with any software or firmware update available at the time of the repair (other than the firmware or software installed during the manufacture of the product). Customer accepts responsibility to maintain a back up copy of its software and data.

#### Warranty Claims Process

In order to obtain service under the Factory Warranty, Customer must notify Datalogic of the claimed defect before the expiration of the applicable Warranty period and obtain from Datalogic a return authorization number (RMA) for return of the product to a designated Datalogic service center. If Datalogic determines Customer's claim is valid, Datalogic will repair or replace product without additional charge for parts and labor. Customer shall be responsible for packaging and shipping the product to the designated Datalogic service center, with shipping charges prepaid. Datalogic sali pay for the return of the product to Customer if the shipment is to a location within the country in which the Datalogic service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations. Failure to follow the applicable RMA policy, may result in a processing fee. Customer shall be responsible for return shipment expenses for products which Datalogic, at its sole discretion, determines are not defective or eligible for warranty repair.

#### Warranty Exclusions

The Datalogic Factory Warranty shall not apply to:

- any product which has been damaged, modified, altered, repaired or upgraded by other than Datalogic service personnel or its authorized representatives;
- any claimed defect, failure or damage which Datalogic determines was caused by faulty operations, improper use, abuse, misuse, wear and tear, negligence, improper storage or use of parts or accessories not approved or supplied by Datalogic;
- (iii) any claimed defect or damage caused by the use of product with any other instrument, equipment or apparatus;
- (iv) any claimed defect or damage caused by the failure to provide proper maintenance, including but not limited to cleaning the upper window in accordance with product manual;
- any defect or damage caused by natural or man-made disaster such as but not limited to fire, water damage, floods, other natural disasters, vandalism or abusive events that would cause internal and external component damage or destruction of the whole unit, consumable items;
- (vi) any damage or malfunctioning caused by non-restoring action as for example firmware or software upgrades, software or hardware reconfigurations etc.;
- (vii) the replacement of upper window/cartridge due to scratching, stains or other degradation and/or
- (viii) any consumable or equivalent (e.g., cables, power supply, batteries, keypads, touch screen, triggers etc.).

#### No Assignment

Customer may not assign or otherwise transfer its rights or obligations under this warranty except to a purchaser or transferee of product. No attempted assignment or transfer in violation of this provision shall be valid or binding upon Datalogic.

DATALOGIC'S LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ORAL OR WRITTEN, STATU-TORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. DATALOGIC SHALL NOT BE LIABLE FOR ANY DAMAGES SUSTAINED BY CUS-TOMER ARISING FROM DELAYS IN THE REPLACEMENT OR RE-PAIR OF PRODUCTS UNDER THE ABOVE. THE REMEDY SET FORTH IN THIS WARRANTY STATEMENT IS THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY FOR WARRANTY CLAIMS. UNDER NO CIRCUMSTANCES WILL DATALOGIC BE LIABLE TO CUSTOMER OR ANY THIRD PARTY FOR ANY LOST PROFITS, OR ANY INCIDEN-TAL, CONSEQUENTIAL IN-DIRECT, SPECIAL OR CONTINGENT

#### DAMAGES REGARDLESS OF WHETHER DATALOGIC HAD AD-VANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

#### **Risk of Loss**

Customer shall bear risk of loss or damage for product in transit to Datalogic. Datalogic shall assume risk of loss or damage for product in Datalogic's possession. In the absence of specific written instructions for the return of product to Customer, Datalogic will select the carrier, but Datalogic shall not thereby assume any liability in connection with the return shipment.

## **Ergonomic Recommendations**



In order to avoid or minimize the potential risk of ergonomic injury follow the recommendations below. Consult with your local Health & Safety Manager to ensure that you are adhering to your company's safety programs to prevent employee injury.

- Reduce or eliminate repetitive motion
- Maintain a natural position
- Reduce or eliminate excessive force
- Keep objects that are used frequently within easy reach
- Perform tasks at correct heights
- Reduce or eliminate vibration
- Reduce or eliminate direct pressure
- Provide adjustable workstations
- Provide adequate clearance
- Provide a suitable working environment
- Improve work procedures.

## Support Through the Website

Datalogic provides several services as well as technical support through its website.

Log on to www.datalogic.com and click on the SUPPORT > Industrial Handheld Scanners category link. From this page you can select your product model from the dropdown list which gives you access to:

**Downloads** including Data Sheets, Manuals, Software & Utilities, and Drawings;

**Repair Program** for On-Line Return Material Authorizations (RMAs) plus Repair Center contact information;

Service Program containing details about Maintenance Agreements;

Technical Support through email or phone.

## Hex-Numeric Keypad

Use the barcodes that follow to enter numbers as you would select digits/characters from a keypad.



## Hex-Numeric Keypad (continued)



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### Hex-Numeric Keypad (continued)







## NOTES





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# **COJATALOGIC**

#### www.datalogic.com

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