DATALOGIC

PowerScan™ PM9300 Family

Industrial Cordless Handheld Laser Bar Code Reader



Quick Reference Guide

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Patents

See www.patents.datalogic.com for patent list.

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

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- END -

Software Product Policy

Datalogic reserves the right to ship its products with the latest version of software/firmware available. This provides our customers with the very latest in Datalogic software technology.

The only exception to this policy is when the buyer has a signed contract with Datalogic that clearly defines the terms and conditions for making software/firmware changes in products shipped to the buyer.

Customers Under Software Support

To arrange for a Software Maintenance and Support Agreement please contact your Datalogic sales person.

NOTES

Powerscan™ PM9300

Description

The PowerScan™ PM9300 is a feature-rich and rugged laser reader. It is offered in several different models to better fit the different needs of each customer.

The table below shows the unique features of each model:

Model P/N	Optical feature
PM9300-XX	Standard optic, standard and high density codes
PM9300-DXX	Standard optic, standard and high density codes, Display and 4 keys keypad
PM9300-DKXX	Standard optic, standard and high density codes, Display and 16 keys keypad
PM9300-ARXX	Autorange optic, standard and low density codes, long depth of field
PM9300-DARXX	Autorange optic, standard and low density codes, long depth of field, Display and 4 keys keypad
PM9300-DKARXX	Autorange optic, standard and low density codes, long depth of field, Display and 16 keys keypad

General Features

Operating	To read a symbol, simply aim the reader and pull the trigger.
Decoding	Thanks to powerful algorithms, PowerScan™ PM9300 reliably decodes all major 1D (linear) barcodes. The data stream — acquired from decoding a symbol — is rapidly sent to the host. The reader is immediately 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 formatting and be concatenated.

Using the PowerScan™ PM9300

The PowerScan™ PM9300 normally functions by capturing and decoding bar codes. The reader is equipped with an aiming system which helps to aim the target.

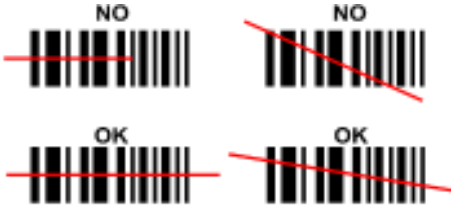
Table 1. Aiming System



PowerScan™ PM9330 provides an aiming system. If enabled, a partial trigger press produces a red spot, which should be aimed over the code center to get the best reading performance, see figure (1) above. By completely pressing the trigger the scan line appears to start the code scanning (2).

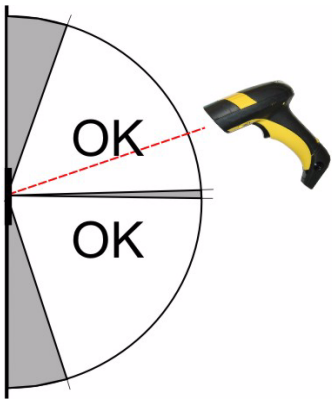
Scan Line Position

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 9300 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.



NOTE

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

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



WARNING

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.**



WARNING

- **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.



CAUTION

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.



CAUTION

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 dis-

charging / 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, 2012/19/EU, and subsequent modifications, US and China regulatory and others laws and regulations about the environment.

Charging the Batteries

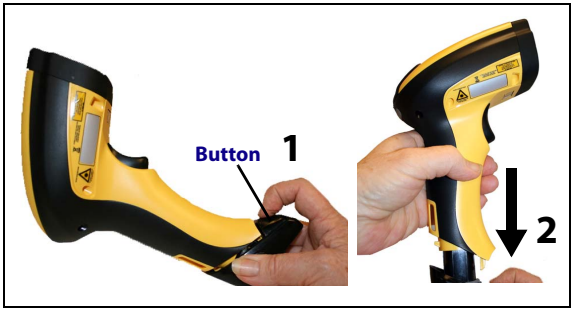
Once the BC 90x0 is powered, you can charge the reader's batteries. Place the PowerScan™ PM9300 into the BC 90x0 cradle. The Reader LED on the cradle/battery charger turns red. The battery is completely charged when the Reader LED on the cradle/battery charger turns green.

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.





WARNING

Do not incinerate, disassemble, short terminals or expose to high temperature at risk of fire, explosion. Use specified charger only. Risk of explosion if the battery is replaced by incorrect type. Dispose of 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 PM9300. 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 8, 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 custom factory settings restored, scan the bar code below to reset the reader to initial configuration. Reference the PRG for other options, and a listing of standard factory settings.



NOTE

Factory defaults are based on the interface type. Be sure your reader is configured for the correct interface before scanning this label.



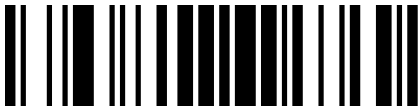
Reset Default Settings

Compatibility with the PowerScan™ 8000 family

The PM9300 can be programmed to operate in a mode compatible with the PowerScan 8000 family. For further details and for the relevant configuration strings and labels, refer to the PM8300 Compatibility PRG.

Set Date and Time (Optional Setting)

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



ENTER/EXIT PROGRAMMING MODE

2. Scan the Set Date bar code + six digits for Year, Month and Day (YYMMDD) from the Hex-Numeric Keypad on page 22.



Set Date

3. Scan Set Time + six digits for Hours, Minutes and Seconds (HHMMSS) from the Hex-Numeric Keypad on page 22.



Set Time

4. Scan the Enter/Exit Programming bar code 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.

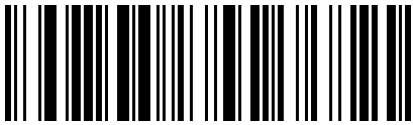
To link the handheld and the base, press the trigger to wake up the handheld, and mount it on the base. If the reader was previously linked to another base, you must first scan the **Unlink** bar code before re-linking to the new base.



Unlink

Power Off

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



PowerOff

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	PM9300-XX: 405g; PM9300-ARXX, PM9300-DXX, PM9300-DKXX: 435g; PM9300-DARXX, PM9300-DKARXX: 465g
Electrical Characteristics	
Battery Type	Li-Ion battery pack
Charge time for full charge from full discharge	4,5 hours with external power supply adapter[a]
	Typical 10 hours with Host power (in this case no supply adapter is needed)[a]
Operating autonomy (continuous reading)	PM9300-XX: 50,000+ reads PM9300-ARXX: 40,000+ reads
Cradle consumption and DC input supply range	Volt 10-30 VDC; Power <8W[b]; Max 500mA when in host/bus powered mode[b].

a. 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	Laser	
	PM9300-XX	**PM9300-ARXX**
Roll (Tilt) Tolerance	± 35°	± 10°
Pitch Tolerance	± 40°	± 60°
Skew (Yaw) Tolerance	± 65°	± 65°
Print Contrast Minimum	25% minimum reflectance	
Resolution	3 mils	7,5 mils
Scan Rate	104 (± 12) scans/sec	35 (± 5) scans/sec
Scan Angle	47° max	13.5° (± 0.7°) max
Depth of Field (Typical)		
Symbology Code 39	**PM9300-XX**	
5 mils	1.5 - 28 cm / 0.6 - 11"	
7.5 mils	1.5 - 42 cm / 0.6 - 16.5"	
10 mils	2 - 50 cm / 0.8 - 19.7"	
20 mils	2 - 110 cm / 0.8 - 43.3"	
40 mils	2 - 160 cm / 0.8 - 63"	
EAN 13	2.5 - 65 cm / 1 - 25.6"	
Symbology Code 39	**PM9300-ARXX**	
7.5 mils	9 - 50 cm / 3.5 - 19.7"	
10 mils	14 - 85 cm / 5.5 - 33.5"	
15 mils	15 - 155 cm / 5.9 - 61"	
20 mils	15 - 220 cm / 5.9 - 86.6"	
40 mils	20 - 340 cm / 7.9 - 133.9"	
55 mils	25 - 420 cm / 9.8 - 165.4"	
Reflective Label Code 39		
70 mils	Up to 9 m / 29 ft	
100 mils	Up to 11.5 m / 37 ft	

Note: the reading performances may change with different symbologies.

DECODE CAPABILITY

PM9300-XX

GS1 Databar linear codes, UPC/EAN, UPC/EAN P2/P5 Addons, UPC/EAN Coupons, ISBN, Code128, EAN128, Code39, Code39 Full ASCII, Code 32, Codabar, Interleaved 2 of 5, IATA, Industrial 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

PM9300-XXARXX

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, Standard 2 of 5, MSI, Code 93

Interfaces Supported	RS-232, Keyboard Wedge, and USB.

USER ENVIRONMENT

Operating Temperature	-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	PM9300-XX 100,000 Lux	PM9300-XXARXX 43,000 Lux
Contaminants: Spray/rain, Dust/particulates	IP65	
ESD Level	20 KV	

Regulatory

See the Regulatory Addendum for details.

Radio Features

Frequency working center	433MHz	910 MHz model
Programmable Speed	19.2 kb/s 115.2 kb/s 500 kb/s (default)	36.8 kb/s 500 kb/s (default)
Typical Range (in open air)	50m (at 500kb/s) 100m (at 19.2kb/s)	150m (at 500kb/s) 400m (at 36.8kB/s, frequency hopping) 50m (at 36.8kb/s, fixed channel)
Max number of devices per base station	16	

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.

INDICATION	DESCRIPTION	LED	BEEPER
Power-up Beep	The reader is in the process of powering-up.	N/A	Reader beeps four times at highest frequency and volume 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 Indicate" (see the PRG for information.)	The reader will beep once at current frequency, volume, tonal setting and duration upon a successful label scan.
Green Spot[a] flashes momentarily	Upon successful read of a label, the software 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
Configuration Alignment	Reader and Base are aligning the parameters' configuration	Fast Flashes	N/A

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

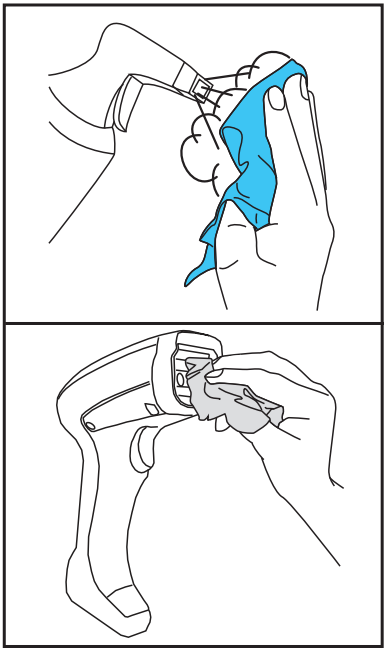
[a]Except when in sleep mode or when a Good Read LED Duration other than 00 is selected

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

INDICATION	DESCRIPTION	LED	BEEPER
Label Programming Mode Entry	A valid programming label has been scanned.	LED blinks continuously	Reader sounds four low frequency beeps.
Label Programming Mode Rejection of Label	A label has been rejected.	N/A	Reader sounds three times at lowest frequency and current volume.
Label Programming Mode Acceptance of Partial Label	In cases where multiple labels must be scanned to program one feature, this indication acknowledges each portion as it is successfully scanned.	N/A	Reader sounds one short beep at highest frequency and current volume.
Label Programming Mode Acceptance of Programming	Configuration option(s) have been successfully programmed via labels and the reader has exited Programming Mode.	N/A	Reader sounds one high frequency beep and 4 low frequency beeps followed by reset beeps.
Label Programming 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.



CAUTION

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 ('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 shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Da-

talogic 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:

(i) any product which has been damaged, modified, altered, repaired or upgraded by other than Datalogic service personnel or its authorized representatives;
(ii) 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;
(v) 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, STATUTORY 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 CUSTOMER ARISING FROM DELAYS IN THE REPLACEMENT OR REPAIR 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 INDIRECT, SPECIAL OR CONTINGENT DAMAGES REGARDLESS OF WHETHER DATALOGIC HAD ADVANCE 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



CAUTION

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;

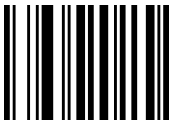
Repair Program for On-Line Return Material Authorizations (RMAs) plus Repair Center contact information;

Service Program containing details about Maintenance Agreements;

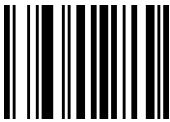
Technical Support through email or phone.

Hex-Numeric Keypad

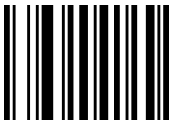
Use the barcodes that follow to enter numbers or alpha characters as you would select characters from a keypad.



0



1



2



3



4

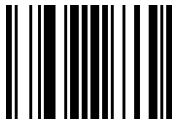
Hex-Numeric Keypad (continued)



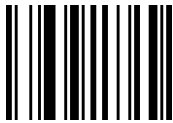
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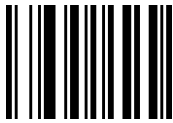
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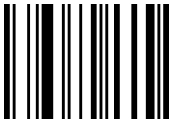
Hex-Numeric Keypad (continued)



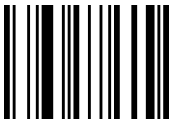
A



B



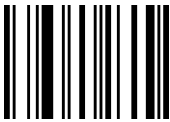
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D



E



F

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