

# Rhino™ II/ SH Blackline

## USER'S MANUAL



Rugged Vehicle Mount Computer

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# INTRODUCTION

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## CONVENTIONS

"Mobile computer", "Vehicle Mount Computer", "VMC" refer to Rhino II and SH Blackline vehicle mount computer.

"Rhino II" is the name of devices having a display of 10" or 12"

"SH Blackline" is the name of devices having a display of 15" or 21".

In this document, "Rhino II" also refer to devices having 15" or 21" display size.

Win10 IoT refers to the Windows 10 IoT operating system.

The label artworks may be only a draft. Refer to the product labels for more precise information.

## PRODUCT OVERVIEW

The Rhino II/SH Blackline vehicle mount computers, available 10", 12", 15" and 21" display sizes, set the standard for ruggedness in the warehouse. A sealed design tested to IP65/IP67 ensures operation in the toughest environments. A dedicated freezer-rated model with integrated display heater allows use in and out of cold storage (not available for the 21" display size models). The capacitive touch models feature 3 mm anti-glare armored glass, while still allowing use of gloves.

Tailored for warehouse management, the Rhino vehicle computer increases productivity through reduced errors during receiving, putaway, picking and shipping activities. Adding a handheld barcode scanner such as Datalogic's PowerScan™ allows for quick data entry and location confirmations.

The Rhino vehicle computer is equipped with an internal isolated power supply, ignition sense to automatically control the power, and an optional battery backup for the ultimate protection against data loss. The Rhino vehicle computer fits different mounting and space constraints. Mounting options include various brackets and RAM mounts for the vehicle computer along with ABCD or QWERTY external keyboards. A dedicated software keyboard includes a multitude of layouts and languages, adapting the Rhino computer to a minimum footprint and global applications.

The Rhino II/SH Blackline offers a choice of Windows Embedded Compact 7 (WEC7) or Windows 10 IoT Enterprise (W10) operating systems. Included are Wavelink Avalanche and Terminal Emulator. On W10 models the Datalogic Aladdin installer also is pre-loaded.

## AVAILABLE MODELS

The Rhino II/SH Blackline is available in different models depending on the options it is equipped with. All options are listed below:

- Internal power supplies: 12-48VDC and 110-220 VAC
- Screen sizes: 10", 12", 15" and 21"
- Operating System: Windows 10 IoT, Android 7
- Freezer Model

For further details about the Rhino II/SH Blackline models refer to the web site: <http://www.datalogic.com>.

For further details about the Rhino II/SH Blackline models refer to the web site: <http://www.datalogic.com>.

## OUT OF THE BOX

The Rhino II/SH Blackline package contains:

- Rhino II/SH Blackline vehicle mount computer
- Power cable = 2.9m (9.5')
- Bag - 4 mounting screws and washers for use with RAM mounts
- Bag - rubber cable slot seals and cable ties
- Bluetooth USB adapter (only for Windows 10 IoT and models with Laird PE15N radio)
- Quick Start Guide
- Safety & Regulatory Addendum
- End User License Agreement (EULA) Sheet.

Remove all the components from their packaging; check their integrity and compare them with all the packing documents.



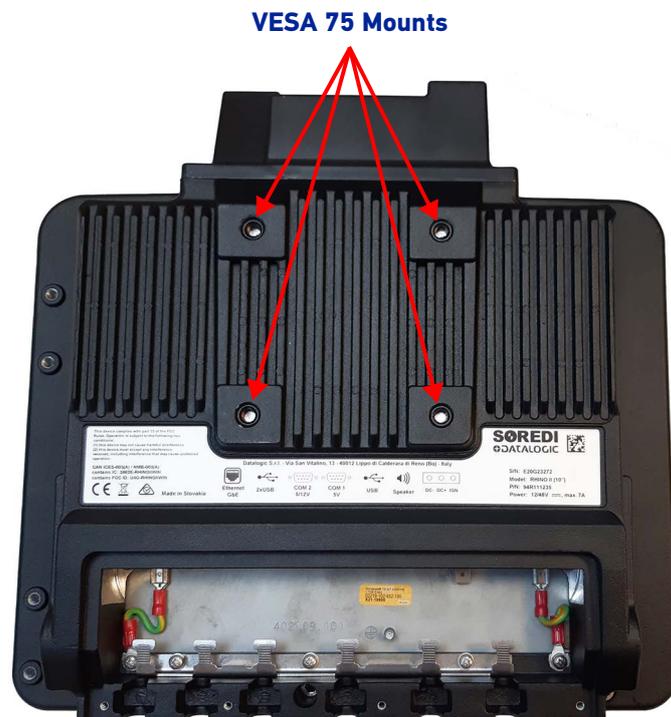
**CAUTION: Keep the original packaging for use when sending products to the technical assistance center. Damage caused by improper packaging is not covered under the warranty.**

# GENERAL VIEW - RHINO II

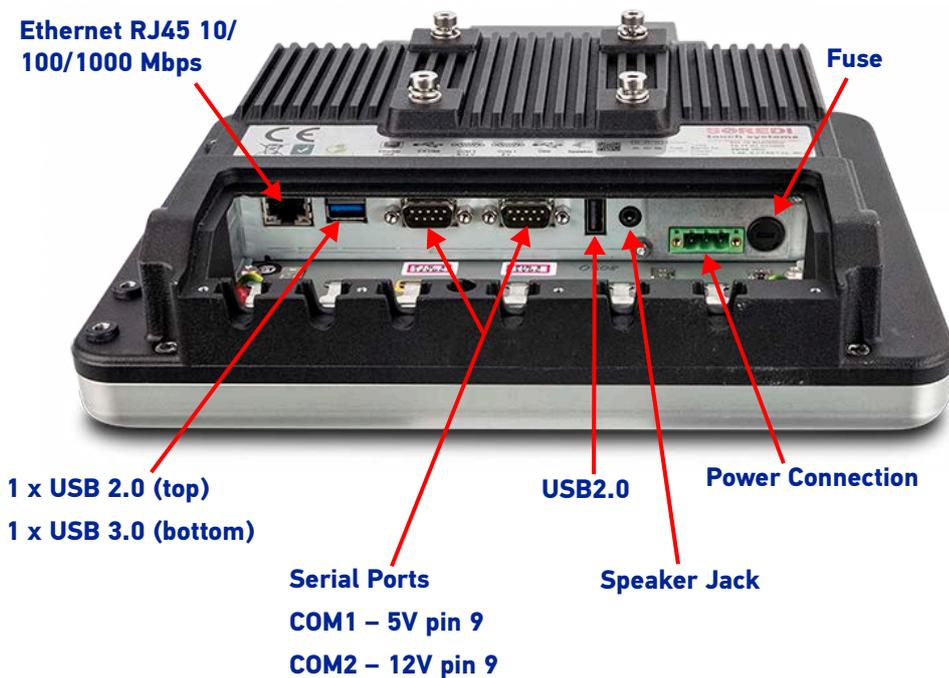
## Front



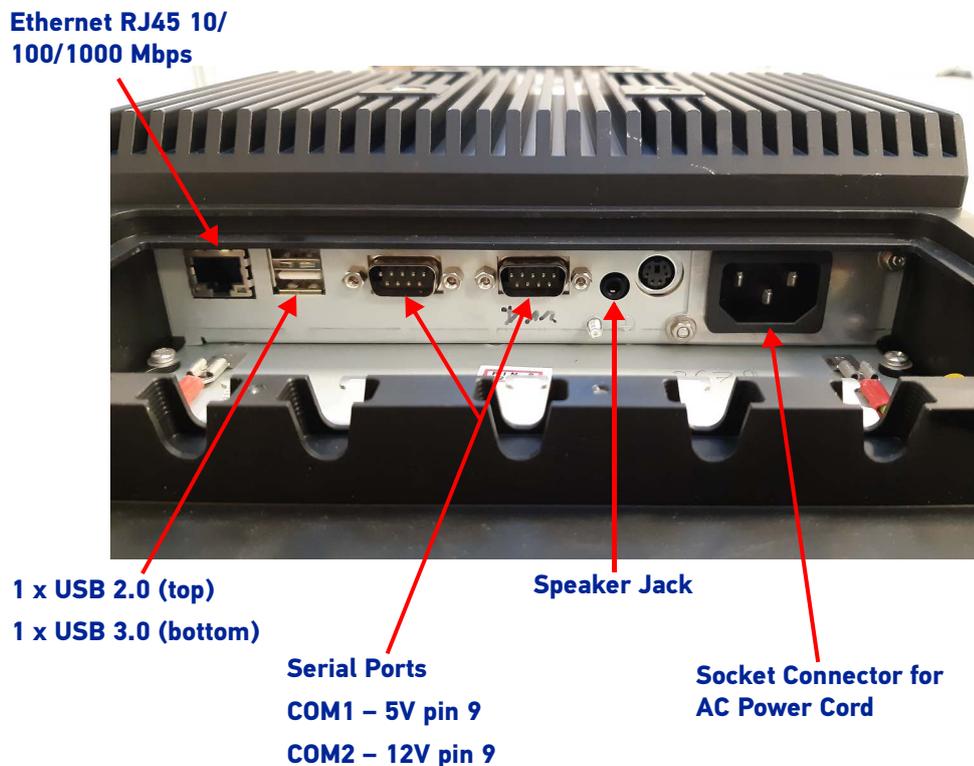
## Back



## Bottom - Battery Powered Models

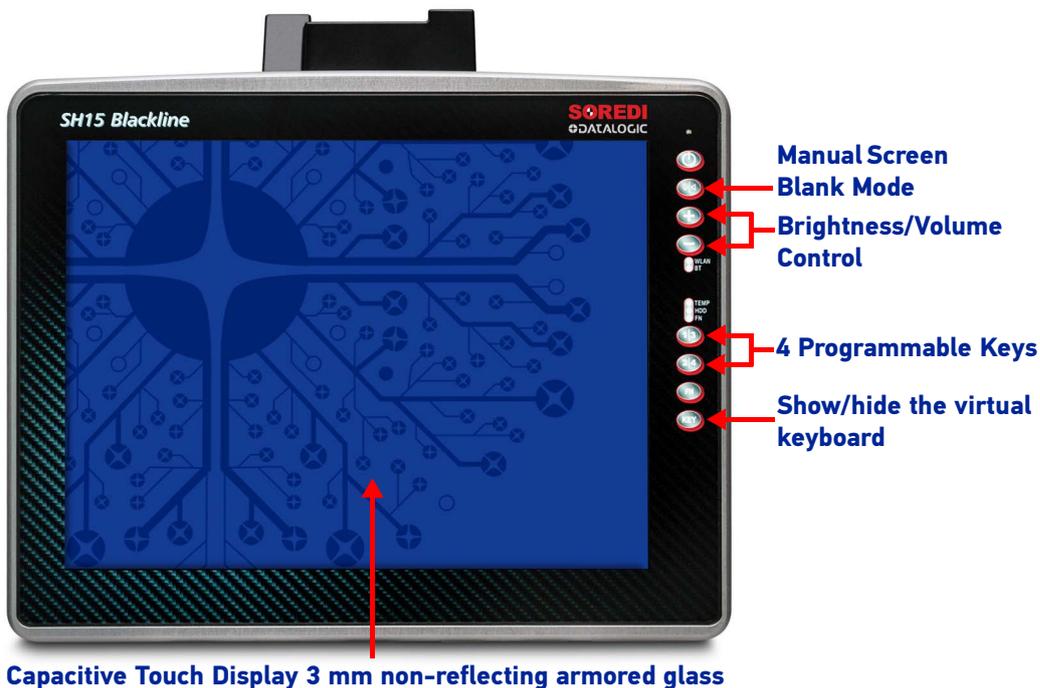


## Bottom - Mains Powered Models

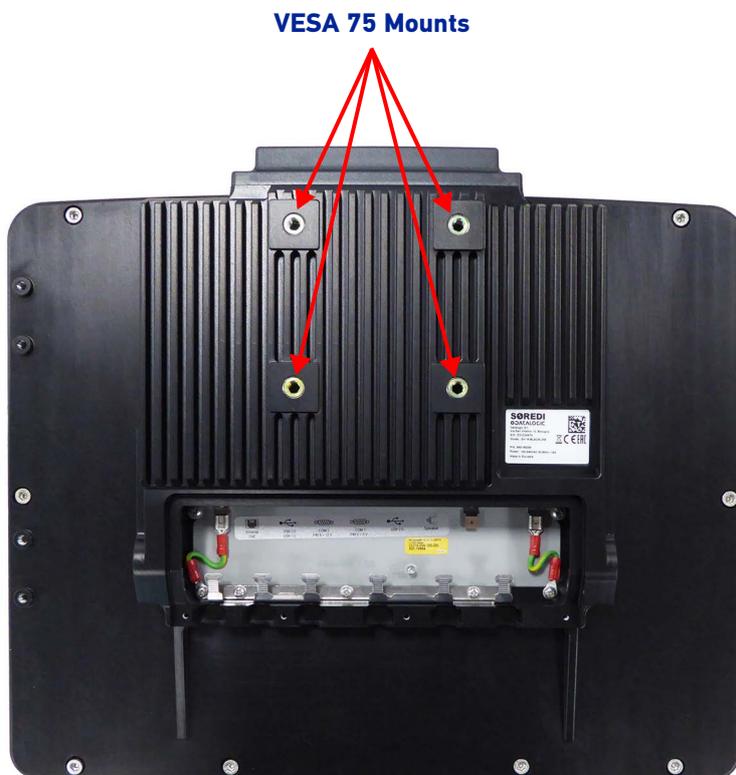


# GENERAL VIEW - SH BLACKLINE

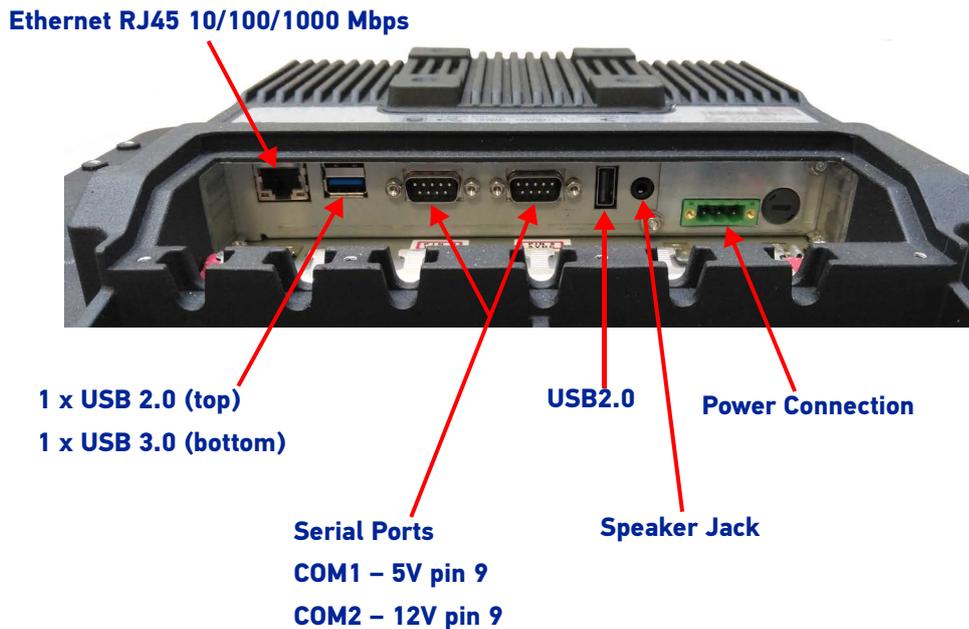
## Front



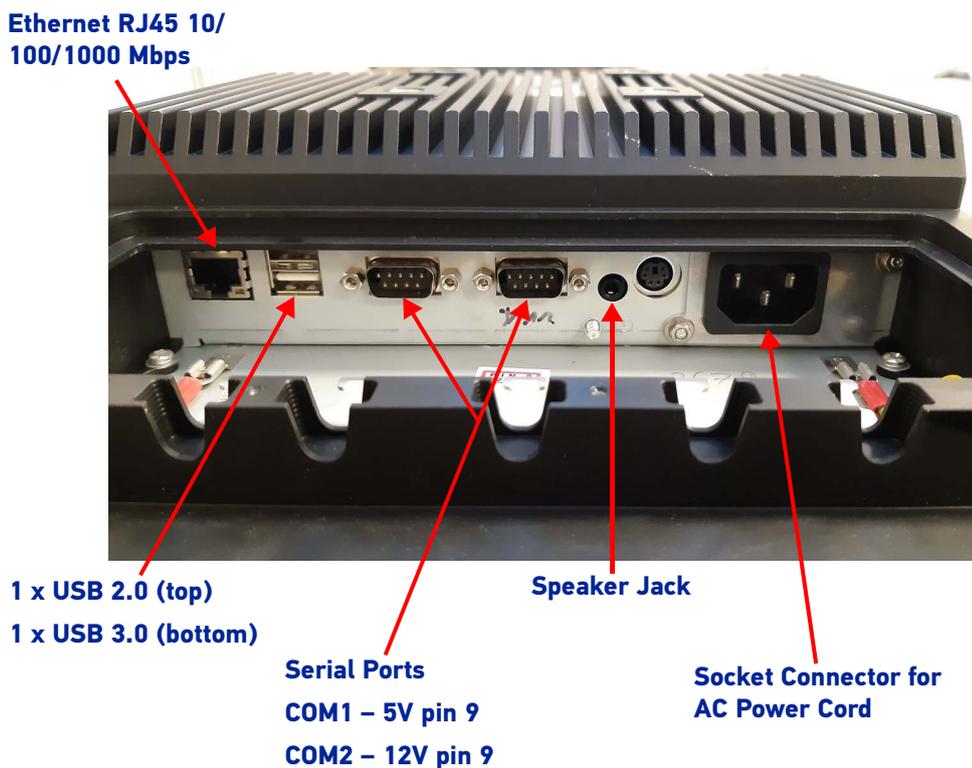
## Back



## Bottom - Battery Powered Models



## Bottom - Mains Powered Models



## ACCESSORIES

### Mounts/Stand

94ACC0155	Keyboard external mounting bracket (full size keyboard)
94ACC0156	Scanner holder (right side)
94ACC0175	Quick change V-Mount (Rhino II/SH15 only)
94ACC0280	Vesa holder mobile
94ACC0285	RAM mount C size arm 12cm, E,E
94ACC0154	Vehicle mounting bracket - 10 degrees for 10/12 in
94ACC0034	RAM mount with round base (D Size, 2.25in)(Rhino II/SH15 only)
94ACC0266	Scanner holder LS36, DS36
94ACC0281	Amber foot (Berstein Fuss)
94ACC0035	RAM mount 4" rail base (D Size, 2.25in) (Rhino II/SH15 only)
94ACC0172	Fixed mounting bracket - 130 degrees for 10/12/15 in
94ACC0284	RAM mount D size arm 21cm, E,R

### Batteries/Battery Chargers

94ACC0164	UPS battery backup with speaker
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### Power Supplies/Cords

94ACC0161	AC/DC Power brick, 24VDC to 110/230VAC (requires IEC line cord) (Rhino II/SH15 only)
94ACC0286	Bluetooth USB dongle
94ACC0041	Power converter: 72-110 VDC input; 15VDC output (requires 12 24VDC industrial computer)
94ACC0165	DC power cable, 2.9 meters (included with Rhino II/SH15 DC main unit)

### Cables

94ACC0264	External antenna cable and dome antenna
94ACC0157	Screen blanking RS232 cable

### Miscellaneous

94ACC0173	Cable cover, 5 poles, w 2.9m power cable (for quick disconnect)
94ACC0158	24 Key - right side mount keyboard (10 key layout + F1-F6)
94ACC0268	CFast 64 GB industrial
94ACC0270	SSD solid state disc industrial 240 GB
94ACC0279	Antenna cover without antennas (no Wifi option)
94ACC0283	i5Core RAM expansion 16GB
94ACC1374	Compact keyboard, external, QWERTY layout
94ACC0287	External keyboard, QWERTZ layout
94ACC0265	Bracket - metal holder for 24 key keyboard
94ACC0267	CFast 32 GB industrial
94ACC0269	CFast 128 GB industrial
94ACC0278	Antenna top cover
94ACC0159	Top cover for LTE WWAN USB & dual antennas

94ACC0160	Speaker cable cover
94ACC0163	Antenna, roof mount dome, 4 dBi, 2.4 to 5.9 GHz, top cover, 3m cable (certified for 10" and 12" models only). r
94ACC0174	Cable cover IP65, with single USB
94ACC0273	Antenna top cover deutsch Poste
95ACC1331	External keyboard, ABCD layout
95ACC1330	External keyboard, QWERTY layout



**CAUTION: Use only a Datalogic approved power supply and cables. Use of an alternative power supply will invalidate any approval given to this device and may be dangerous.**

# GETTING STARTED

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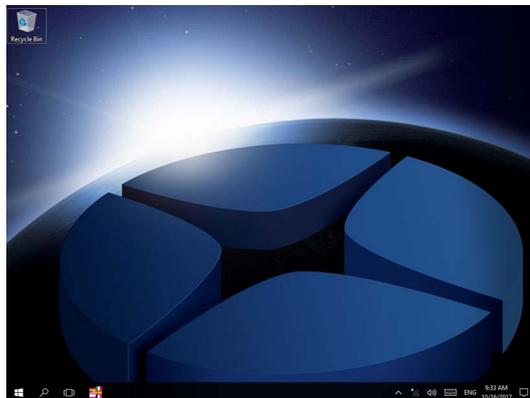
## POWER ON

The Rhino II/SH Blackline turns on based on its current startup mode settings (see Startup/Shutdown Modes on page 17).

As soon as the VMC is on, the desktop will appear on the screen. Wait a few seconds before starting any activity so that the mobile computer completes its startup procedure. The VMC shuts down based on its current shutdown mode settings (see Startup/Shutdown Modes on page 17).

## DESKTOP WINDOW

As soon as the mobile computer is on, the desktop appears on the screen. Wait a few seconds before starting any activity so that the mobile computer completes its startup procedure.



Win10 IoT Desktop

## ADJUSTING THE SCREEN BRIGHTNESS

To adjust the screen brightness:

- Press the + button to increase the brightness.
- Press the - button to decrease the brightness.

## ADJUSTING THE VOLUME

To adjust the volume, press the FN button first

- Press + button to increase the volume. The computer will play the Default Sound at the new volume setting.
- Press the - button to decrease the volume. The computer will play the Default Sound at the new volume setting.

## USING THE ACCESSORIES

### Using an External Keyboard

You can use many standard USB compatible keyboards. Datalogic recommends the use of a sealed/ruggedized key-board:

- Sealed/rugged keyboards are available from Datalogic including: full sized QWERTY, ABCD, or mini QWERTY USB keyboards
- The keyboard attaches to one of the two USB ports on the Rhino. It is automatically detected and prepared for use.

For information on installing the rugged keyboard and its mount, see the Rhino II and the SH Blackline Quick Start Guides.

### Using a Barcode Scanner

You can use either a USB or serial scanner with the Rhino II/SH Blackline computer. Be sure to order your scanner with the appropriate cable.

#### Connecting a USB Scanner

1. Remove the cable compartment cover plate.
2. Plug the cable into one of the USB ports. Depending on the scanner you are attaching, you may hear a series of beeps and the Good Read light may flash.
3. Choose a rubber plug for the scanner cable with the appropriate sized hole. Run the cable through the hole, then insert the plug into a slot on the terminal.
4. If desired, use a nylon tie-wrap to secure the cable to the post inside the cable compartment. Replace the cable compartment cover
5. The scanner should now be ready for use. To test, run any program that accepts keyboard input and perform a scan. If the data does not display in the application, consult the user manual for the scanner.

#### Connecting a Serial Scanner

COM1 provides 5VDC on pin 9, COM2 provides 12 VDC. Verify which voltage the scanner requires and connect to the appropriate COM port.

1. Remove the cable compartment cover plate.
2. Plug the cable into the desired COM port. Depending on the scanner you are attaching, you may hear a series of beeps and the Good Read light may flash.
3. Choose a rubber plug for the scanner cable with the appropriate sized hole. Run the cable through the hole, then insert the plug into a slot on the terminal.
4. If desired, use a nylon tie-wrap to secure the cable to the post inside the cable compartment. Replace the cable compartment cover
5. Configure the serial wedge program for the selected port and baud rate. See Setting Up Serial Scanning on page 127. The scanner should now be ready for use. To test, run any program that accepts keyboard input and perform a scan. If the data does not display in the application, consult the user manual for the scanner.

## RESETTING THE TERMINAL

There are two reset methods for the Rhino II/SH Blackline.

A warm boot terminates an unresponsive application and clears the working RAM, but preserves the file system. The Registry is restored from persistent memory if available or returned to factory default.

A clean boot restores the VMC to a clean configuration: both the Registry and the file system returns to a clean status that conforms to factory default (WEC7 only).

### Warm Boot

To perform a warm boot, power down the terminal.

## LED INDICATORS

The LEDs illuminate to indicate various functions or errors on the reader. The following tables list these indications.

LED	Status	Description
Top Blue (Top)	Solid	Wi-Fi connected
Blue (Center)	-	Not used
Blue (Bottom)	Solid	FN toggled on
Red	Solid	High Temperature Warning
Yellow	Solid	HD Access

# RHINO II/SH BLACKLINE CONFIGURATION

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## STARTUP/SHUTDOWN MODES

The Rhino II/SH Blackline has 3 modes of controlling Startup and Shutdown. The mode is set by commands in the "\Utilities\UtilConfig.cfg" file. Each mode controls how the Ignition Sense power connector wire (IGN) and the VMC's front panel Power button (PWR) work together. In the default mode (mode 1), IGN must be at a voltage greater than 10 VDC and PWR must be pressed and held for a specified period to power up the VMC. Shutting down in this mode may be accomplished by removing the positive voltage from IGN or pressing the PWR button, either must be for a specified time to shut-down.

The other common mode (mode 0) allows IGN or PWR to control the Startup/Shutdown. In this mode connecting IGN to positive voltage will power up the VMC, and disconnecting it will power down. Similarly powering up via PWR then pressing PWR again will power back down. If using PWR to control the VMC in this mode, IGN should NOT be switched or tied to + power. When using this mode you should either be exclusively using IGN to control the VMC, or PWR but not mixing the two.

NOTE: If the VMC is powered up via IGN, but powered down via PWR, it will immediately begin to power back up.

The final mode (mode 3) is seldom used. In this mode, the VMC will power up anytime there is power applied. Both IGN and PWR are ignored in this state.

When the VMC is being powered down by IGN, it will typically display a countdown screen advising the user the remaining time before the terminal shuts down. The shutdown time as well as whether the countdown is displayed are both controlled by the configuration file.

Configuration (in \Utilities\UtilConfig.cfg):

- PowerOnMode=1            Sets the Startup/Shutdown mode.  
0 = IGN or PWR  
1 = IGN and PWR  
3 = AutoOn
- IgnOffDialog=01            Display the shutdown timer window when IGN is turned off.  
0 = Do not display the window.  
1 = Display the shutdown timer window.
- IgnOffDlgType=2            Size of the shutdown timer window if enabled.  
0 = Full screen display, no user interaction is allowed (not recommended).  
1 = Medium size display, user may move the window and interact with the system.  
2 = Small size display, user may move the window and interact with the system.
- IgnStartTimeSec=3            Seconds after IGN goes high before the VMC begins booting.

- IgnOffDelayTimeSec=15 Seconds after IGN disconnects before the VMC shuts down.
- DelayPowerKey=500 Milliseconds PWR must be pressed before the VMC begins booting.

## FRONT PANEL KEYS

There are four programmable buttons on the right side of the terminal. The programming is set by command lines in the "\Utilities\UtilConfig.cfg" file. The buttons are PWR, 1/3, 2/4 and KEY. The 1/3 and 2/4 buttons are actually programmable as two keys each, giving a total of six available keys. In normal operation these will generate the specified 1 key and 2 key values. If the FN key is pressed to set the VMC into function mode, pressing the same keys will generate the specified 3 key and the 4 key values. When FN is pressed, the blue function LED will display. Press FN to turn off the LED and the function mode. Otherwise, the function mode will be turned off after 8 seconds. By default, the buttons have the following functions:

- PWR – Starts & shutdowns the terminal depending on the current Startup/Shutdown mode.
- 1 – Up arrow.
- 2 – Down arrow.
- 3 – Escape key.
- 4 – Return key.
- KEY – Display/remove the soft keyboard from the screen.

Normally the PWR and KEY buttons should not be reprogrammed, but they are available if required.

Configuration (in \Utilities\UtilConfig.cfg). The listed values are the default values from the factory. Setting PWR and KEY to blank causes them to execute Startup/Shutdown and Softkeyboard respectively. The VK values for each key are listed in the Keyboard section of this document. Multiple values can be entered for a key by using comma to separate the values. For example, the definition `Frontkey_S1=#EXT=VK_TAB,VK_RETURN` would cause the S1 key to transmit tab, then a return key.

- `Frontkey_PWR=`
- `Frontkey_S1=#EXT=VK_UP`
- `Frontkey_S2=#EXT=VK_DOWN`
- `Frontkey_S3=#EXT=VK_ESCAPE`
- `Frontkey_S4=#EXT=VK_RETURN`
- `Frontkey_KEY=`

The S1-S4 keys can also be used to launch executables. Just give the fully qualified name after the equal sign. For example:

```
Frontkey_S1=\Windows\pword.exe
```

will launch the WordPad program when the 1 key is pressed.

The Rhino II/SH Blackline also provides the ability to lock the individual front panel keys. There are two keywords to control the state of the keys when the function mode is off (`HWKeyLockFNOff`) and when the function mode is on (`HWKeyLockFNOn`). Each of the keywords is an 8 bit mask, using one bit each to control the individual keys. Bits 0-7 are:

- PWR (1)
- BL (2)
- + (8)
- - (16)
- S1 (32)
- S2 (64)

- FN (128)
- KEY (256)

Setting the specific bit to a 1 will lock the respective key. For example, setting HWKeyLockFNOFF=66 would disable the BL (2) and S2 (64) buttons when the function mode is not set. Setting HWKeyLockFNON=256 would disable the KEY (256) button when the function mode is set.



**NOTE: Be aware that if you are attempting to control the PWR button, you can lock the VMC. Disabling the PWR button at the same time you have the startup mode set to IGN and PWR will block the VMV from being able to be powered up.**

## SCREEN BLANKING

The Rhino II/SH Blackline has the ability to blank the screen when positive voltage is applied to a designated COM port pin. This is typically used to blank the screen when a vehicle is in motion, a requirement in some countries. For the Rhino II/SH Blackline, an external sensor must be used that will either provide a positive voltage when the vehicle moves, or closes a relay in the same circumstance. If using a relay, then the positive voltage from pin 9 of the selected COM port should be wired as input to the relay. The output from the sensor or relay should be wired to pin 1 (DCD) or pin 6 (DSR) of the selected COM port. The screen blanking cable from Datalogic (p/n 94ACC0157) is wired to pin 9 (pink) and pin 6 (grey).

Configuration (in \Utilities\UtilConfig.cfg):

Locate (or add) the line ScreenBlankBits=X in the [General] section of the file. X should be set to the appropriate value from the list:

- 1 – COM1: DCD (pin 1)
- 2 – COM1: DSR (pin 6)
- 4 – COM2: DCD (pin 1)
- 8 – COM2: DSR (pin 6)

Deleting the ScreenBlankBits line from the cfg file will turn off screen blanking.

## KEYBOARD CONFIGURATION FILE

The Configuration file is a text file built in sections to provide the definitions for the keyboard layouts. Comments can be marked at beginning of a line with a semicolon (;).

The configuration is set by commands in the "\Utilities\SoftKeys\SoftKeys.cfg" file.

### Section [Common]

In this section general settings will be defined.

Certain settings can be overridden explicitly within the definition sections of the actual keyboard data for the respective keyboard. These settings are explained separately in a 2nd table.

### General Settings

Keyname	Parameter – Info
ImagePath	Directory name for all used Bitmaps within this Cfg. The specified directory is always searched in the list of the specified CFG file. A complete path specification is not supported.

Keyname	Parameter – Info
KBShowOnStart=X	With this parameter a fixed specified Keyboard will be shown automatically after the start. X stands for the Keyboard-Number from the Keyboard-Config. For example, KBShowOnStart=1 always shows the Keyboard from the Cfg-Section [Keyboard_01]. If no keyboard should be visible at the start, X can be set to a invalid Number, e.g. 100 or the parameter can be left out.
SysAdminPwdKB	Specifies the defined keyboard number for a password keyboard.
SysAdminMenKB	Specifies the defined keyboard number for a SysAdmin-Menu-Keyboard.
RotateScreen	With this you can specify the angle of rotation which is set by the key function VKX_KB_SCRROTATE. A maximum of four values are possible (0=Default-Systemstartup, 1=90°, 2=180°, 3=270°). For rotation minimum 2 values must be defined. For example RotateScreen=0,1 is defined, it will be toggled between these two angles. If the Key isn't existing or empty, all 4 values will be set one after another.

## Pre Settings for Keyboards

These settings apply here for all following keyboard definitions, however, they can be explicitly overridden in the keyboard definition for special cases.

Keyname	Parameter – Info
FramelImage	<i>BitmapName.bmp,FrameSizeX,FrameSizeY</i> Bitmap for the Keyboard-Frame and to set the background. FrameSizeX defines the left and right distance to the keys. FrameSizeY defines the upper and lower distance to the keys. A keyboard without frame can be defined.
TitleBar	<i>0 (=Default)</i> With 1 the Windows title bar can here be activated for special cases.
Title	Here, any string can be defined as titles for TitleBar, e.g. "Soft Keyboard".
AlphaValue	<i>0 (=Default – no Transparency)</i> Here values of 10 (almost completely transparent / invisible) to 250 (almost opaque) are accepted.
TransparentCol	<i>0 (=Default – not transparent respectively invisible color)</i> Here, a color can be set that is completely invisible in the output, i.e. the background is completely visible. This will, for example, be used to produce Window frames round corners or to paint the icons used regardless of the background color of the buttons. Usually, purple is mostly used. The colors are always in RGB notation, Example: "TransparentCol=255,0,255".

Keyname	Parameter – Info
ZoomFactor	Here a maximum 10 zoom values are specified, separated by commas. The values are always specified as a percentage (e.g 200 = twice as large as normal). The starting size of a keyboard is always 100% in accordance with the key sizes specified in the keyboard definition, etc. The value 100 must not be specified separately in the Zoom list - it is automatically inserted at the beginning.
RepeatKeys	0=Off, 1=On (Default), on default the Repeat function is activated. For special Keyboards with special functions this Repeat function is mostly not desired.
AutoMove	0=Off (Default), 1=On, allows freely moving Keyboards with finger. Therefore you must press anywhere on the Keyboard and immediately start to move (wipe) it around. If this function is activated, which results in a slight delay (~ 100 ms) when releasing (or pressing) the key. If you tap the key only briefly, the key function is executed without further delay on release.
AutoSnap	0=Off, 1=On (Default), the Snap function – means the snapping on the screen corners and if there is enough space also centred on the edges – only works in conjunction with the option AutoMove=1. To trigger the automatic snapping, with a short wipe the keyboard must be moved to the right direction. Only at short wiping movements (< 500 ms) the Snap function is activated. If the movement of the keyboard takes longer, you can move it to any position (without snapping). The screen sizes are not supported for snapping.

### Section [VolumeTouchCtrl]

This section defines the graphics used in the touch screen volume control.

Background	The bitmap displayed as the background of the volume control.
Pointer	Bitmap used to indicate the current volume.
Mutelcon	When the speaker is muted, this bitmap will be displayed.

### Section [VolumeTouchCtrl]

This section defines the graphics used in the touch screen volume control.

Keyname	Parameter
Fontname	<i>font name, width, height, Text (3 cols), Shadow (3 cols), shadow offset (2 cols), format</i>

The various fields can be assigned as follows:

Fontname	For this keyname any name can be given, according to the use of fonts. If the font definition will be used later for the keys, the font must be specified in this section.
Font name	Name of the desired and installed Windows system font.

Width	<b>Width</b> 0 will be used as default, so the font is displayed in its natural width. For special cases the character width will be stretched or compressed.
Height	The height of the font in pixels.
Text- R,G,B	In these 3 fields, the red, green, blue values for the font colors are defined. For all RGB fields values from 0-255 allowed.
Shadow - R,G,B	In this 3 fields the R,G,B values for shadow colors are defined.
Shadow offset X,Y	Shadow offset in pixels. Setting offset to 0 = no shadow.
Format	If specified, font formatting may be set to italic (I) and/or bold (B).

Example:

**FontDef = Arial, 0,26, 0,0,0, 190,190,190, 2,2, B**

**FontMini = Tahoma, 0,14, 0,0,0, 190,190,190, 0,0, IB**

**FontSymbol = Wingdings, 0,29, 0,0,0, 190,190,190, 0,0, B**

## Section [Keys]

In this section the general and for all keyboards valid definition for the layouts of the single keys will be specified.

Max. 40 individual Key-Layouts can be created.

Keyname	Parameter
KeyName	<i>FontName, BMPNormal, BMPActive, TxtMode, IconMode, FrmXL,FrmYL, FrmTxtNormL,T,R,B, FrmTxtActL,T,R,B, FrmIconNormL,T,R,B, FrmIconActL,T,R,B</i>

The various fields can be assigned as follows:

KeyName	This KeyName can arbitrarily be named. If the key will be used later on the keyboard, the corresponding defined <i>KeyName</i> must be specified.
FontName	The Fontname from the [Fonts] section to be used.
BMPNormal	Bitmap for normal key display (not pressed).
BMPActive	Bitmap for active key display (pressed).
TxtMode	Here the orientation for the text output can be determined, per default the text will be displayed always horizontal and vertical centered in the key. L=left-aligned, R=right-aligned, T=top, B=bottom. Combinations like e.g. 'LT' or 'LB' are allowed.
IconMode	Orientation for Icon-Positioning, identical to <i>TxtMode</i> .
FrmXL, FrmYL	Here special frame values for the allocation of Bitmaps ( <i>BMPNormal + Active</i> ) can be set to create bigger or smaller Buttons. Normally it isn't necessary and the values should be left empty.

FrmTxt-NormL,T,R,B	Position frame for the text output in normal keys. With the values L=Left,T=Top,R=Right,B=Bottom substituting the distances of the text output to the side edge. This is necessary so that the text will not be written over the 3D-Frame of a key by left-aligned output.
FrmTxtActL,T,R,B	Position frame for the text output at active/pressed keys. The frame for the active Display will be specified in 1-3 Pixel (depends on key size). In this case the effect of a pressed key will appear.
FrmIcon-NormL,T,R,B	Position frame for the Icon output of normal keys.
FrmIconActL,T,R,B	Position frame for the Icon output of active/pressed keys.

## Section [Keyboard\_XX]

This section provides the actual definition of the keyboards. Max. 20 Keyboards (XX = 01-20) are possible for each Cfg-File. A Keyboard Definition is only recognized as valid if at least the line "L01\_Norm" is defined in the section (see description below).

With horizontal screen orientation (Landscape), the default definitions are read, for example, [Keyboard\_01].

In vertical orientation (Portrait-Mode), first the system tries to read the keyboard definition from the Section [Keyboard\_XX\_Portrait], for example from [Keyboard\_01\_Portrait].

If nothing is defined in the Portrait-Section (at least L01\_Norm) or the section doesn't exist, the default landscape will be used.

## General Settings

Keyname	Parameter – Info
Name	Individual Name for the Keyboard. This name can be shown optional in the Title bar (or can be eventually be used later to control the keyboards).
DefaultKeyName	Here the KeyName layout from the [Keys] section will be specified, which will be used for all keys.
DefaultKeySize	XLength,YLength Standard-Key size for this Keyboard in Pixels.
Position	XPos,YPos Start position of the keyboard in pixels. Should the keyboard be moved by the user, this new position is stored in the registry for each keyboard and used in subsequent starts.
CloseOnClick	0=Off (Default), 1=On, this mode automatically closes the keyboard after pressing or executing a button.
CloseToggle	0=Off (Default), 1=On, an open keyboard with this mode, by a repeated call (e.g. carry out by a key or a HW-Key) can be closed again.

Keyname	Parameter – Info
CloseOnTimer	0=Off, Value >= 1000 specifies a timeout value in milliseconds for this keyboard. If the timer runs out, the keyboard will be automatically closed. A keystroke on the keyboard will start the timer each time again.

## Definition of Keyboard-Layouts

The definition of the keyboard layout is done in single lines. For each line 3-Cfg Keys are possible, according to the status of the special keys. Max. 20 key lines can be defined per keyboard.

The overall size of the keyboard is automatically calculated based on the contained buttons.

Keyname	Parameter – Info
LXX_Norm	Definition of the Key row XX for the normal key status.
LXX_Shift	Definition of the Key row XX for the status at pressed Shift-Key.
LXX_AltGr	Definition of the Key row XX for the status at pressed AltGr-Key.

For XX any number from 01-20 can be specified.

The Syntax is always the same, e.g.: **LXX\_Norm=Key1|Key2|Key3|...|**

It is important that even the last key must always be terminated with the vertical bar character "|".

The number of keys within a row is not explicitly limited, but no more than 300 keys per keyboard can be defined. Overlapping keys will not be checked, the definition must be correct at any time.

## Syntax of a Key Definition

The syntax of a key is constructed as: **"#Command;VK\_CODE;Text|"**

Single Fields and Commands will be separated through a Semicolon (;).

Each Key must be finished with the vertical bar character ("|" Ascii-Code=124).

Special Commands will be introduced with the Character "#".

Should one of these reserved characters be indicated in the text or as a key code, the Hex-Code must be used:

- "|" = "0x7C"
- "#" = "0x23"
- ";" = "0x3B"

The fields "#Command" and "Text" are optional, so that a minimum definition can look like: "A|"

The generated Key code as well as the label of the key is defined with "A". This works with single characters only. For other special keys, special "Virtual Keycodes (VK)" are defined. (See table below).

If in a text for a key the combination "0x0A" is used, it will enforce a word-wrap in the label of this key.

Example: "Row 1 0x0A Row 2"

However the possibility of vertical centering will be lost if using word-wrap.

## Commands for Key Definitions

**Important:** Position fixes and changes are evaluated only in the "LXX\_Norm" line. The Shift and AltGr-definition position changes are ignored, as it could otherwise lead to conflicting data.

#ICON=<file>	Set Bitmap-Icon for this Key. This icon can also be used for different color designed keyboards, it should be drawn on transparent background. If <file> has no file ending automatically ".bmp" is appended.
#KDEF=<key>	Enables a new Key-layout <key> (from Section [Key]) for this and all subsequent keys of that row. For new lines, the layout is always automatically reset to the <i>DefaultKeyName</i> .
#KUSE=<key>	Sets the key layout <key> (from Section [Key]) explicitly for the current key.
#KUSE2=<key>	Sets a 2nd Key-Layout for a 2nd Text.
#KXL=<Size>	Change the length of the actual Key to <Size>. <Size> is evaluated as a floating point number and returns the size relative to <b>DefaultKeySize</b> . Example: "1" corresponds exactly to <i>DefaultKeySize</i> , "1.5" 150% of the size and "2" 200% of the default size.
#KYL=<Size>	Change the height of the actual key to <Size>.
#YADD=<Size>	Change the general Y-Position for the key positioning. When setting the first key, for example all following lines/keys can be deducted from the upper keys.
#SP=<Size>	Adds an appropriate distance before the current key.
#EXT=<name>	Allows the definition of several key codes with one key. For a detailed description see the following section.
#VXT=<name>	Allows the direct definition of key codes for one key. The format is identical to #EXT certainly with #VXT the data's can directly be written into the Key definition, the bypass over a Key in the [ExtendedKeys]-Section is here not necessary.
#EXEC=<exedef>	Executing of Windows-Shell-Commands. In <exedef> defined Name must indicate a definition from the Section [Execute]. In the Execute section all commands must be defined and grouped together to perform.

### #KUSE2 for Creative Inscriptions

With #KUSE2 a complete 2nd Layout for a key from the section [Keys] can be set. #KUSE2 must be always at the end of the Keydefinition. The first Keytext should be explicit defined with "Text".

The fields *BMPNormal*, *BMPActive* of the KUSE2-Layouts will always be ignored.

#KUSE2 always applies only to the definition of a current key.

Example:

```
L05_Norm = ...|VK_F1;"F1";#KUSE2=<Layout2>;"This is the KUSE2 Text :-)"|...
```

```
L05_Norm = ...|VK_F1;"F1";#KUSE2=<Layout2>;"This is 0x0A two lines added"|...
```

## Keycodes definition with #EXT

If you want to assign a key with multiple codes, this is done by means of #EXT definition within a key definition. Using #EXT only the symbolic name of the definition is indicated. The actual definition of each key code will be executed in the section [Extended Keys]:

```
DefName1=Key1,Key2,Key3,.....
```

```
DefName2=Key1,Key2,Key3,.....
```

In the section a maximum of 20 different strings can be defined with multiple key codes. The maximum length of the symbolic name DefName is 50 characters. In a definition (in a row) a maximum of 100 key codes may be defined. As a separator between different codes a comma is used. To generate a comma, this can be done through the name VK\_COMMA.

To assign a keyboard key with Ctrl-Alt-Delete, the following definition must be specified:

```
DefName=#CTRL_ALT_DEL
```

Before releasing a Key sequence, all other Keys will be "released" to prevent problems with mixing of keystates like Shift, Control and Alt.

Example:

```
[ExtendedKeys]
```

```
MyTestString = This is a test!
```

```
TextExt1     = @
```

```
TestExt2     = VK_ALTGR,q
```

```
Special      = VK_ESCAPE,VK_F1, This was ESC and F1
```

```
[Keyboard_XX]
```

```
L01_Norm     = ^|#EXT=MyTestString;1|2|3|4|5|6|7|8|9
```

```
L01_AltGr    = ||#EXT=Special;^|_|{|[[|]|}|
```

Like in the above example TestExt+2 shown, Keys can be generated through different definitions.

If you have problems with specific combinations try explicitly the respective left and right code definitions of Special Keys, e.g. VK\_LCONTROL, VK\_RSHIFT, etc...

Status keys as VK\_SHIFT, VK\_CONTROL, etc... always affect only the directly following 'real' key. For example should F5 are pressed with Shift and F6 with Shift + Control, it must be specified as follows:

```
Special      = VK_SHIFT,VK_F5,VK_SHIFT,VK_CONTROL,VK_F6
```

## Section [Execute]

In this Section programs for availability with Soft Keys can be defined. Using a key definition with EXEC# = <ExecDefineName>, the key can launch the defined program.

Execute Assignments are only allowed for normal user keyboards. In Soft-Keyboards, for example appears in UAC-, System- or Login-Screens, the execution of any Program is permitted. To prevent a possible mixing or problems with the KB-definition, the following settings allow defining a separate logon keyboard.

The Section Keyboard also includes other general settings and is described in SorediService documentary.

```
File:          SoftConfig.cfg
```

```
Section:       [Keyboard]
```

Settings: LogonKeyboardCfg=<...Path...LogonKeyboardConfig.cfg>

The format of the definitions in the Execute section looks like this:

**ExecName = ProgramName,Callparameter,Directory**

**Example:**

[Execute]

InternetAddress="www.google.de"

ElevatedApp=^calc.exe

Network=control,netconnections

CtrlPanel=control

AdminTaskMan=runas.exe,/user:administrator taskmgr.exe.

## SYSTEM-ADMIN AND PASSWORD-KEYBOARD

The system admin menu or keyboard is always linked with the upstream password entry.

The behaviour is defined as follows:

- If the SysAdmin-Menu is **not active** at pressing the KEY-Button, always the entry password dialog appear.
- If the SysAdmin-Menu is **active** at pressing the KEY-Button the normal Keyboards like usually will be fade in or fade out.
- If the SysAdmin-Menu will be exit, all normal open Keyboards will be closed automatically.

Both keyboards in the [Common] section of the Keyboard Config be activated as follows:

**SysAdminPwdKB=Num**

**SysAdminMenKB=Num**

For Num the Number of the corresponding Keyboard-configuration will be specified.

These Special-Keyboards, always should be specified after the normal Keyboards.

If the Password-Keyboard for example is defined in the Section [Keyboard\_10] the above entry would look like: SysAdminPwdKB=10.

**Attention:**

With SysAdmin....KB defined Keyboards, means Keyboards which will be started at UAC/ System- and Login-Sessions will NOT be read in and therefore they don't have any meaning.

## Password Keyboard

The Password-Keyboard can be configured like any other Keyboard. A complete Keyboard (incl. Letters) can be configured below the entry field.

The Password-Keyboard appears after pressing onto the KEY-Button, if the SysAdmin-Menu is not open. Another push on the KEY-Button deletes the password keyboard from the screen.

When configuring the password keyboards 2 Key codes are of particular importance:

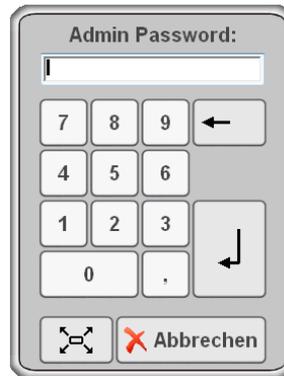
VK\_ESCAPE = Escape (deletes the KB from Screen)

VK\_RETURN = input (entry) ready

After receiving VK\_RETURN the Password will be proved.

If the password is wrong a error message appears.

If the password is correct, the SysAdmin-Keyboard will open.



## Special Settings Password Keyboard

Special Keys for configuration of password keyboards in the [Keyboard\_XX] Section:

Key	Default	Info
KeyDialog=DlgInputLine	-	To enable the Password entry, this key is mandatory with the assigned registry.
KeyDlgPassword=X	-	For X any password can be defined. It is only important, that all characters of the password must be defined and shown in the Password-Keyboard.
KeyDlgText=Text	Password Input	For Text any text can be entered, which will prompt the PID input via the input line.
KeyDlgFont=FontDef	-	Here a Font definition from the Section [Fonts] can be given. The Text from KeyDlgText is then output with this.
KeyDlgColor=R,G,B	-	Here the Color value of a typical Keyboard-Background-Color should be specified. In this case the displayed Pwd-Dialog will be output in the same color. For the silver-grey Soft-Keyboard it is for e.g.: 198,198,198.
KeyDlgPwdErr=ErrText	Invalid Password!	For ErrText any Error-Message can be defined. This will be shown after a wrong Pwd-Input in the MsgBox. A line break can be specified with "\n".
KeyDlgPwdBlock=X	5	For X any number can be specified. This gives a fixed waiting time in minutes. If a wrong password is entered 3 times the Password-Dialog cannot be called up for the duration of the specified waiting period. If a 0 is specified, it will not be blocked.
ExcludeChain=1	0	With 1 this Keyboard will not be considered at fading in/out of the normal Input-Keyboards.
StartupHide=1	0	With 1 this keyboard is prevented from displaying at startup - regardless of the previous state.

## SysAdmin-Menu Keyboard

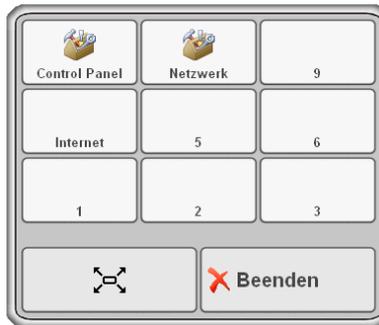
The Admin Menu Keyboard displays after successful password entry through the above password keyboard. For proper function this menu keyboard is configured according to the following section.

This Menu-Keyboard contains always a special Key to Exit. This Key must be defined with the Keycode **VKX\_KB\_HIDE**.

Example: `|#KXL=1.5;VKX_KB_HIDE;#ICON=Cancel;"Cancel"|`

During this Menu-Keyboard is open, over the KEY-Buttons of the unit all other Keyboards can fade in/out normally.

If the Menu-Keyboard will be Exit, all other „normal“ open Keyboards will exit as well and after pressing the KEY-Button the Password-Menu appears again.



## Special Settings SysAdmin-Menu Keyboard

Special Keys to configure System-Admin Keyboards in the [Keyboard\_XX] Section:

Key	Default	Info
ExcludeChain=1	0	With 1 this Keyboard will not be considered at fading in/out of normal Input-Keyboards.
StartupHide=1	0	When 1 this Keyboard will be prevented from being shown at start – independent from the previous Status.
NormalWin=1	0	With 1 the Admin-Menu will be set in a way, that it looks like a normal Window and for example at Start/Click on a different Application moves to the background.
PushForeground=0	1	When 1 the Admin-Menu is prevented from automatically moving back in the foreground again.
ShowInTaskbar=1	0	Because the Admin-Menu might be behind other Apps, it should be visible in the Taskbar (if shown) to activate it again.
Title=<Keybd.Title>	-	Name of keyboards which will be shown in the Taskbar.
ElevateAdmin=X	0	With this setting (ElevateAdmin=1) the Admin-Menu-Keyboard can be started in the Elevated-Mode. In this case all other Keyboards opened with KEY-Buttons are in the elevated Mode.

Otherwise, the keyboard can be configured as a normal keyboard with any buttons. This keyboard has the opportunity to create Keys with executable programs or batch jobs.

## VIRTUAL KEYCODES

### Special Function Codes

The following Function codes can be used to define Keys for special functions.

<i>VKX_KB_MOVE-BUT</i>	Moving function for the Keyboard.
<i>VKX_KB_ZOOM</i>	Zoom function for the keyboard. By pressing this key, the next Zoom level will be activated. (See ZoomFactor on page 25)
<i>VKX_K-B_SWITCHTO=&lt;kbdnum&gt;</i>	Switches the keyboard to <kbdnum>.
<i>VKX_KB_HIDE</i>	Deletes the actual keyboard from the screen.
<i>VKX_KB_K-BOPEN=&lt;kbdnum&gt;</i>	Open the dedicated keyboard. The actual keyboard remains unchanged displayed (unless it isn't defined with the Mode CloseOnClick).
<i>VKX_KB_SCRROTATE</i>	Rotates the screen orientation by 90°. The orientation actually will not be stored. After restart the unit will display again the default orientation.
<i>VKX_KB_UPDO</i>	Change the Keyboard-Position from the upper edge downward and vice versa. The vertical X-Position will not change.
<i>VKX_KB_KEYLIGHT</i>	After pressing on this Button the lighting mode of the HW-Keys will be switched between the 4 possibilities.
<i>VKX_KB_VOL-UMEDLG</i>	Open the dialog to set the volume.
<i>VKX_KB_HWKEY-LOCK</i>	Blocks the HW-Toolbar completely (default). This changing will not stored.
<i>VKX_KB_HWKEY-SCAN</i>	Turns the whole HW-Toolbar for scanning on. This changing will not stored.
<i>VKX_K-B_HWKEY-NORM</i>	Release the HW-Toolbar for normal use.

### General Keyboard Codes

<i>VK_SEPARATOR</i>
<i>VK_BACK</i>
<i>VK_TAB</i>
<i>VK_CLEAR</i>
<i>VK_RETURN</i>
<i>VK_SHIFT</i>
<i>VK_CONTROL</i>

<i>VK_F2</i>
<i>VK_F3</i>
<i>VK_F4</i>
<i>VK_F5</i>
<i>VK_F6</i>
<i>VK_F7</i>
<i>VK_F8</i>

VK_MENU
VK_PAUSE
VK_CAPITAL
VK_ESCAPE
VK_SPACE
VK_PRIOR
VK_NEXT
VK_END
VK_HOME
VK_LEFT
VK_UP
VK_RIGHT
VK_DOWN
VK_SELECT
VK_PRINT
VK_EXECUTE
VK_SNAPSHOT
VK_INSERT
VK_DELETE
VK_HELP
VK_LWIN
VK_RWIN
VK_APPS
VK_NUMPAD0
VK_NUMPAD1
VK_NUMPAD2
VK_NUMPAD3
VK_NUMPAD4
VK_NUMPAD5
VK_NUMPAD6
VK_NUMPAD7
VK_NUMPAD8

VK_F9
VK_F10
VK_F11
VK_F12
VK_F13
VK_F14
VK_F15
VK_F16
VK_F17
VK_F18
VK_F19
VK_F20
VK_F21
VK_F22
VK_F23
VK_F24
VK_NUMLOCK
VK_SCROLL
VK_LSHIFT
VK_RSHIFT
VK_LCONTROL
VK_RCONTROL
VK_LMENU
VK_RMENU
VK_NUMRET
VK_CIRCUMFLEX
VK_SHARP_S
VK_ACCENT
VK_PLUS
VK_GER_UE
VK_GER_OE
VK_GER_AE

<i>VK_NUMPAD9</i>
<i>VK_MULTIPLY</i>
<i>VK_ADD</i>
<i>VK_SEPARATOR</i>
<i>VK_SUBTRACT</i>
<i>VK_DECIMAL</i>
<i>VK_DIVIDE</i>
<i>VK_F1</i>

<i>VK_NUMSIGN</i>
<i>VK_COMMA</i>
<i>VK_POINT</i>
<i>VK_SMALLER</i>
<i>VK_MINUS</i>
<i>VK_ALTGR</i>

# DATALOGIC APPLICATIONS

---

## SETTING UP SERIAL SCANNING

To use a serial scanner with the Rhino II/SH Blackline, a wedge utility must be executed to convey the serial input to the keyboard input. By doing this, the scanner data will be presented to the application as if it had been typed on the keyboard.

### Soft Wedge Application

In Rhino II/SH Blackline the wedge utility is called SoftWedge. The application can be started from C:\Utilities\SoftWedge\SoftWedge.exe. From this point on it will run in background.

To show/hide a status dialog box, tap Start -> Utilities -> SoftWedge.

To automatically launch SoftWedge, follow the instructions to automatically launch applications for the loaded operating system. Search for "add program to startup windows" on the internet, then select the instructions for Windows 10.

### Call Parameters

SoftWedge is controlled by several not case sensitive command-line interfaces, that can be also defined in the Windows-Shortcuts.

Parameter	Description
SHOWCTRL	Displays an internal control window which allows to terminate SoftWedge. It is mainly intended for testing purposes. It should not be shown during normal operation. For WinCE, this option can also be enabled via SoftWedge.ini.
SHOWSTATE	Displays a status window upon startup, which indicates whether a device is detected (Online) or no device is detected (Offline). The status dialog displays always only the last activity. In case of simultaneous or rapid successive actions, for instance during initialisation, only the last device's performance is shown. For WinCE, this option can also be enabled via SoftWedge.ini.
DEBUG	Turns on extended logging. It can be activated only for problems analysis. For WinCE, this option can also be enabled via SoftWedge.ini.

The following parameters are only considered if a SoftWedge has already been started. These commands serve to control any wedge programs running in the background. If there's no wedge program running, the program is immediately terminated.

Parameter	Description
EXIT	Terminates SoftWedge.
TOGGLE	Disables and restores the display of the status dialog. For instance, you can use it to store the status dialog in a desktop shortcut to rapidly display it. This call could also be assigned to a key in SoftKeys.

### Soft Wedge Configuration File

SoftWedge can be configured by commands in the C:\Utilities\SoftKeys\SoftKeys.cfg file.

### CFG Configuration File

From version 2.9 of SoftWedge, the configuration file is called SoftWedge.ini and must be located in the application directory as before. The settings are not compatible with the old program SOREDI\_Wedge.exe and the old configuration file SOREDI\_Wedge.ini and need to be updated.

Keyname	Default	Description
ShowCtrl	0	0 = no control window is open. 1 = Displays an internal control window which allows to terminate SoftWedge. It is mainly intended for testing purposes. It should not be shown during normal operation. This control window also displays the docking status, but only in firmware versions 3.03 and later.
ShowStateDlg	0	0 = no status window is open. 1 = Displays a status window upon startup, that can be closed using a button. The status dialog displays always only the last activity. In case of simultaneous or rapid successive actions, for instance during initialisation, only the last device's performance is shown.
Debug	0	0 = no extended Debug Info login. 1 = writes extended Debug Info in the Logfile. It should be activated only for problems analysis, because performance issues might arise.
COMNameEx	-	WinCE only: to modify the device name for COM interfaces 9 and later. The internal default is set to „\\$device\COM%d:". %d stands for the number of COM ports, that is automatically entered.

## Device Settings at the Section [Device\_X]

Keyname	Default	Description
DevName	Scanner-X	Sets any name for the device, e.g. "Pistol Grip Scanner". The information about the device will be displayed under this name.
External	1	0 = Internal, the device is always available 1 = Handle, the device is only available with the docked handle 2 = Docking, the device is only available in the docking station.  Attention: this information is analysed only if a firmware version 3.03 or later is installed. Older firmware versions will generally search for all devices.
IsIntermec	0/1	0 = no Intermec Scanner. 1 = Intermec Scanner. For the first pistol grip device configured(External=1) will be set a Default=1.
ComPort	-	A COM port number of 1-255 must be here specified. If the setting "IsIntermec=1" is enabled, the indication of a COM port can be omitted because the Intermec Scanner will automatically detect it.
Baudrate	9600	Baud rate setting. For Intermec scanners it normally doesn't need to be set. The typical baud rates for these scanners will be automatically detected (9600, 19200, 38400, 57600, 115200).
Parity	0	0 = No Parity 1 = Even Parity 2 = Odd Parity
DataBits	8	8 or 7 Databits
StopBits	1	1 = one stopbit 2 = two stopbits

## Filter Settings at the Section [Device\_X]

From SoftWedge V2.9, the filter settings can also be configured in the device section. The filters are executed in the order listed.

According to Char definitions for character values there are 2 possible definitions:

- CharValue="#"

direct definition of an ASCII character in single or double quotes.

- CharValue=13

character definition through decimal value.

For most characters, 2 possible definitions are provided. In these cases, both characters are treated equally and at the first record the search is stopped and the filter is applied.

Keyname	Default	Description
StartChar1 StartChar2	-	Defines the Start character. All the previous characters including the Start character will be ignored.
RemoveLeadingZeros	-	Removes all the leading zeros.
EndChar1 EndChar2	-	Defines the End character. All the following characters including the End character will be ignored. For instance, for these End characters the values 10 and 13 could be specified to filter the CR/LF delivered by the scanner at the end of barcodes.
StartIndex	0	Goes to the specified index within the barcodes (0=Codeanfang), all the previous characters will be filtered.
CodeLen	-	Limits the bar code to the specified number of characters.
FillZeroLeft	-	Adds zeros to the left of the bar code. If a bar code character has 8 digits and FillZeroLeft=10 is specified, two more zeros will be added at the beginning of the bar code.
FillSpaceLeft	-	Adds blanks to the left of the bar code. If a bar code character has 8 digits and FillSpaceLeft=10 is specified, two more blanks will be added at the beginning of the bar code.
InpEnd1 InpEnd2	-	Characters with which the barcode entry will be completed. The characters here defined will be added to the bar code, for instance InpEnd1=13, to send a RETURN keystroke.

# COMMUNICATIONS

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There is more than one way to connect the VMC to a host PC running Windows. Each requires specific connections in order to function properly.

## SETTING UP ETHERNET COMMUNICATIONS

Ethernet communications usually do not require special configuration. The VMC default settings are configured to use DHCP to automatically get an IP address from a DHCP server. To change these settings select Start -> Settings -> Network & Internet -> Ethernet.

## SETTING UP 802.11 RADIO COMMUNICATIONS

The Rhino II/SH Blackline has an internal 802.11 a/b/g radio. In Windows 10 IoT the radio is managed by the standard built in Microsoft Wireless Manager. To change settings go to Start -> Settings -> Network & Internet -> Wi-Fi

## SETTING UP BLUETOOTH RADIO COMMUNICATIONS

Running Windows 10 IoT, the Bluetooth radio is attached in the connection compartment to a USB port.

It is managed by the standard built in Microsoft Bluetooth manager.

## WIRELESS AND RADIO FREQUENCIES WARNINGS



**WARNING:** Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications or attachments could damage the product and may violate laws and regulations.

Most modern electronic equipment is shielded from RF signals. However, certain electronic equipment may not be shielded against the RF signals generated by VMC.

Datalogic recommends persons with pacemakers or other medical devices to follow the same recommendations provided by Health Industry Manufacturers Associations for mobile phones.

**Persons with pacemakers:**

- Should **ALWAYS** keep this device more than twenty five (25) cm from their pacemaker and/or any other medical device;
- Should not carry this device in a breast pocket;
- Should keep the device at the opposite side of the pacemaker and/or any other medical device;
- Should turn this device **OFF** or move it immediately **AWAY** if there is any reason to suspect that interference is taking place.
- Should **ALWAYS** read pacemaker or any other medical device guides or should consult the manufacturer of the medical device to determine if it is adequately shielded from external RF energy.

In case of doubt concerning the use of wireless devices with an implanted medical device, contact your doctor.

Turn this device **OFF** in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may use equipment that could be sensitive to external RF energy.

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles. Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

An air bag inflates with great force. **DO NOT** place objects, including either installed or portable wireless equipment, in the area over the air bag or in the air bag deployment area. If a vehicle's wireless equipment is improperly installed and the air bag inflates, serious injury could result.

Turn off the device when in any area with a potentially explosive atmosphere. Observe restrictions and follow closely any laws, regulations, warnings and best practices on the use of radio equipment near fuel storage areas or fuel distribution areas, chemical plants or where any operation involves use of explosive materials.

Do not store or carry flammable liquids, explosive gases or materials with the device or its parts or accessories.

Areas with a potentially explosive atmosphere are often, but not always, clearly marked or shown.

Sparks in such areas could cause an explosion or fire, resulting in injury or even death.

# TECHNICAL FEATURES

## TECHNICAL DATA

ITEM	DESCRIPTION
<b>PHYSICAL CHARACTERISTICS</b>	
<b>Construction</b>	Coated aluminum, no fan design
<b>Dimensions</b>	27.8 x 22.3 x 6.4 cm / 10.9 x 8.8 x 2.5 in
<b>Weight</b>	4.5 Kg / 9.9 lb (10 inch Freezer Models) 4.7 Kg / 10.4 lb (10 inch Standard Models) 5.8 Kg / 12.8 lb (12 inch Standard Models) Values refers to Intel Atom Quad Core models with cable cover mounted. Weights can change depending on the models and on the accessories installed.
<b>Display</b>	Resistive/Freezer Model: 10.4 inch SVGA 800x600, 400 NITS; Capacitive/Standard Models: 10.4 inch XGA, 1024 x 768, 350 NITS 12.1 inch XGA, 1024 x 768, 500 NITS 15 inch XGA, 1028 x 768 21 inch XGA, 1024x 7
<b>Function Buttons</b>	4 programmable keys (S1-S4)
<b>Mounting</b>	VESA: 75 mm pattern
<b>Screen Blanking</b>	Optional
<b>Speakers</b>	Optional: downward facing, waterproof
<b>Touchscreen</b>	Resistive, 4 Wire (Freezer model only); Capacitive; 3 mm, non-reflecting, hardened glass; Gloves support
<b>Video Output</b>	1 x HDMI port (top)
<b>Voice Support</b>	Wireless via Bluetooth v4
<b>ELECTRICAL</b>	
<b>Backup Battery</b>	Optional backup battery for up to 30 min. runtime; 2,500 mAh @ 10.8 VDC; 27 Wh; Battery charging: 0 to 50 °C / 32 to 122 °F Battery operating: -20 to 50 °C / -4 to 122 °F
<b>Power supply</b>	12-48VDC or 110-220VAC
<b>Light Indicators</b>	On front bezel

ITEM	DESCRIPTION
<b>ENVIRONMENTAL</b>	
<b>Humidity</b>	10 to 90% at 40 °C / 104 °F; non-condensing
<b>Temperature*</b>	Operating: -20 to 55 °C / -4 to 131 °F (without heater, Capacitive models); -30 to 55 °C / -22 to 131 °F (with heater, minimal condensation using freezer-rated model - 10" only)
<b>Shock &amp; Vibration</b>	Class 5M3 at EN 60721-3-5: 1998 (landcrafts)
<b>Particulate and Water Sealing</b>	IP65/IP67
<b>WIRELESS COMMUNICATIONS</b>	
<b>Local Area Network (LAN)</b>	2.4 GHz and 5 GHz WiFi Radio. Models with Laird PE15N Radio: 802.11 a/b/g/n. Models with Silex SX-PCEAC2 Radio: 802.11 a/b/g/n/ac.
<b>Personal Area Network (PAN)</b>	Bluetooth wireless technology. Models with Laird PE15N Radio: external dongle BT 4.0. Models with Silex SX-PCEAC2 Radio: integrated BT 5.0.
<b>Antennas</b>	Diversity antennas under top cap; Optional cab mount antenna
<b>INTERFACES</b>	
<b>Interfaces</b>	1 x Ethernet 10/100/1000 Mbps; RJ45; USB: 2 x USB 2.0 Type A (bottom) 1 x USB 3.0 Type A (bottom) 1 x USB 2.0 Type A (top) Serial: 2 x RS-232 (bottom); COM1: 5 V on pin 9; COM2: 5/12 V on pin 9
<b>Interface Slots</b>	1x Mini-PCIe, half or full size slot (full size used for Wi-Fi) 1x CFast for SSD
<b>SYSTEM</b>	
<b>Operating System</b>	Windows 10 IoT Enterprise 64 bit
<b>Processor</b>	Intel(R) Atom(TM) E3826 Dual Core 1.46 GHz or Intel(R) Atom(TM) E3845 Quad Core 1.91 GHz or Intel(R) Core(TM) i5-5350U Dual Core 1.8 GHz
<b>Memory</b>	4 GB RAM or 8GB, expandable to 16GB for models with i5 processor
<b>Storage</b>	32 GB CFast SSD and 64GB. Models with 240GB SSD are also available
<b>SOFTWARE</b>	
<b>Configuration and Maintenance</b>	Datalogic Aladdin™
<b>Terminal Emulation</b>	Wavelink Terminal Emulation™
<b>Soft Keyboards</b>	Includes QWERTY layouts for English, German, Italian, Spanish, Polish; Azerty French layout; Function Key layout (F1-F12)

\*. The declared max operating temperature is calculated at standard/common CPU workload and may be slightly lower if CPU is overstressed. Performance degradation or device shutdown can happen as preventive safety at extreme temperatures. To ensure a reliable operation at low temperature, Datalogic recommends to turn on the device and to carry out the bootstrap when the device temperature is over 0°C.

ITEM	DESCRIPTION
<b>SAFETY &amp; REGULATORY</b>	
<b>Agency Approvals</b>	The product meets necessary safety and regulatory approvals for its intended use.
<b>Certifications</b>	Certified for CE/FCC; RoHS compliant
<b>Regulatory</b>	US, Canada, EU countries
<b>WARRANTY</b>	
<b>Warranty</b>	1-Year Factory Warranty

# TROUBLESHOOTING

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If you send the Rhino II/SH Blackline in for service, it is your responsibility to save the computer data and configuration. Datalogic is responsible only for ensuring that the hardware matches the original configuration when repairing or replacing the computer.

## PROBLEMS WHILE OPERATING THE RHINO II/SH BLACKLINE

Problem	Solution
You press <b>Power</b> and nothing happens	<ul style="list-style-type: none"><li>• Make sure you are connected to a power supply.</li><li>• Make sure the brightness is not set all the way to the darkest or lightest setting. Press the + key until you reach the desired brightness level.</li><li>• Make sure you are pressing the Power button for at least the minimum duration set in the configuration (default 3 seconds).</li><li>• If the VMC will not reboot, contact Datalogic or your local Datalogic service representative for help.</li></ul>
The VMC appears to be locked up and you cannot enter data.	<ul style="list-style-type: none"><li>• Press and hold Power to turn off the VMC, and then turn it back on.</li><li>• If the VMC will not reboot, contact Datalogic or your local Datalogic service representative for help.</li></ul>

## PROBLEMS WITH WIRELESS CONNECTIVITY

Problem	Solution
The VMC is not communicating with the access point.	The host may have deactivated or lost your current terminal emulation session. In a TCP/IP direct connect network, you need to turn off the "Keep Alive" message (if possible) from the host so that the TCP session is maintained while a VMC is suspended.
The VMC is not communicating with the access point.	In a TCP/IP network, there may be a problem with the connection between the access point and the host computer. Check with your network administrator or use your access point user's manual.

Problem	Solution
The VMC is not communicating with the access point.	<ul style="list-style-type: none"><li data-bbox="655 215 1385 376">• The VMC is not connected to the access point. Make sure the access point is turned on and operating. You may also be using the VMC out of range of an access point (no green bars). Try moving closer to an access point to reestablish communications.</li><li data-bbox="655 387 1385 488">• Make sure the VMC is configured correctly for your network. The radio parameters on the VMC must match the values set for all access points the VMC may communicate with.</li><li data-bbox="655 499 1385 566">• The radio initialization process may have failed on the 802.11 radio. Try rebooting the VMC.</li><li data-bbox="655 577 1385 667">• If you have tried these possible solutions and nothing happens, you may have a defective radio card. For help, contact Datalogic or your local Datalogic service representative.</li></ul>

# MAINTENANCE

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## CLEANING THE DEVICE

Periodically clean the Rhino II/SH Blackline using a soft cloth slightly dampened with only water or Isopropyl Alcohol (70%). Do not use any other cleaning agents (e.g. different alcohol, abrasive or corrosive products, solvents) or abrasive pads to clean the device.

If the plastic areas are very dirty use only a cloth dampened with water.

## 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.

# SAFETY AND REGULATORY INFORMATION

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**NOTE: Read this manual carefully before performing any type of connection to the Rhino II/SH Blackline.**

**The user is responsible for any damage caused by incorrect use of the equipment or by inobservance of the indication supplied in this manual.**

## GENERAL SAFETY RULES

- Before using the device and the battery pack, read carefully the Safety and Regulatory Addendum.
- Use only the components and accessories supplied by the manufacturer for the specific VMC being used.
- Do not attempt to disassemble the VMC, as it does not contain parts that can be repaired by the user. Any tampering will invalidate the warranty.
- When replacing the battery pack or at the end of the operative life of the VMC, disposal must be performed in compliance with the laws in force in your jurisdiction.
- Do not submerge the VMC in liquid products.
- For further information or support, refer to this manual and to the Datalogic web site: [www.datalogic.com](http://www.datalogic.com).



**NOTE: See the Safety & Regulatory Addendum included with your product for additional regulatory, safety and legal information.**

# TECHNICAL SUPPORT

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## SUPPORT THROUGH THE WEBSITE

Datalogic provides several services as well as technical support through its website. Log on to ([www.datalogic.com](http://www.datalogic.com)).

For quick access, from the home page click on the search icon , and type in the name of the product you're looking for. This allows you access to download Data Sheets, Manuals, Software & Utilities, and Drawings.

Hover over the Support & Service menu for access to Services and Technical Support.

## Reseller Technical Support

An excellent source for technical assistance and information is an authorized Datalogic reseller. A reseller is acquainted with specific types of businesses, application software, and computer systems and can provide individualized assistance.

## WARRANTY TERMS AND CONDITIONS

Datalogic warrants that the Products shall be free from defects in materials and workmanship under normal and proper use during the Warranty Period. 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. The Warranty Period shall be **one year** from the date of shipment by Datalogic, unless otherwise agreed in an applicable writing by Datalogic.

Datalogic will not be liable under the warranty if the Product has been exposed or subjected to any: (1) maintenance, repair, installation, handling, packaging, transportation, storage, operation or use that is improper or otherwise not in compliance with Datalogic's instruction; (2) Product alteration, modification or repair by anyone other than Datalogic or those specifically authorized by Datalogic; (3) accident, contamination, foreign object damage, abuse, neglect or negligence after shipment to Buyer; (4) damage caused by failure of a Datalogic-supplied product not under warranty or by any hardware or software not supplied by Datalogic; (5) any device on which the warranty void seal has been altered, tampered with, or is missing; (6) 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; (7) use of counterfeit or replacement parts that are neither manufactured nor approved by Datalogic for use in Datalogic-manufactured Products; (8) any damage or malfunctioning caused by non-restoring action as for example firmware or software upgrades, software or hardware reconfigurations etc.; (9) loss of data; (10) any consumable or equivalent (e.g. cables, power supply, batteries, etc.); or (11) any device on which the serial number is missing or not recognizable.

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# GLOSSARY

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## Access Point

A device that provides transparent access between Ethernet wired networks and IEEE 802.11 interoperable radio-equipped mobile units. Hand-held mobile computers, PDAs or other devices equipped with radio cards, communicate with wired networks using Access Points (AP). The mobile unit (mobile computer) may roam among the APs in the same subnet while maintaining a continuous, seamless connection to the wired network.

## ASCII

American Standard Code for Information Interchange. A 7 bit-plus-parity code representing 128 letters, numerals, punctuation marks and control characters. It is a standard data transmission code in the U.S.

## Barcode

A pattern of variable-width bars and spaces which represents numeric or alphanumeric data in binary form. The general format of a barcode symbol consists of a leading margin, start character, data or message character, check character (if any), stop character, and trailing margin. Within this framework, each recognizable symbology uses its own unique format.

## Bit

Binary digit. One bit is the basic unit of binary information. Generally, eight consecutive bits compose one byte of data. The pattern of 0 and 1 values within the byte determines its meaning.

## Bluetooth®

A standard radio technology using a proprietary protocol. The onboard Bluetooth® module in the device is compatible with the 2.1 protocol with Enhanced Data Rate (EDR).

## Boot

The process a computer goes through when it starts. During boot, the computer can run self-diagnostic tests and configure hardware and software.

## Character

A pattern of bars and spaces which either directly represents data or indicates a control function, such as a number, letter, punctuation mark, or communications control contained in a message.

## Density (Barcode Density)

The number of characters represented per unit of measurement (e.g., characters per inch).

**Dock**

A dock is used for charging the terminal battery and for communicating with a host computer, and provides a storage place for the terminal when not in use.

**Firmware**

A software program or set of instructions programmed on a hardware device. It provides the necessary instructions for how the device communicates with the other computer hardware. Firmware is typically stored in the flash ROM of a hardware device. While ROM is "read-only memory," flash ROM can be erased and rewritten because it is actually a type of flash memory.

**Flash Memory**

Non-volatile memory for storing application and configuration files.

**Host**

A computer that serves other mobile computers in a network, providing services such as network control, database access, special programs, supervisory programs, or programming languages.

**Laser**

Light Amplification by Stimulated Emission of Radiation. The laser is an intense light source. Light from a laser is all the same frequency, unlike the output of an incandescent bulb. Laser light is typically coherent and has a high energy density.

**Light Emitting Diode (LED)**

A low power electronic light source commonly used as an indicator light. It uses less power than an incandescent light bulb but more than a Liquid Crystal Display (LCD).

**Parameter**

A variable that can have different values assigned to it.

**RAM**

Random Access memory. Data in RAM can be accessed in random order, and quickly written and read.

**RF**

Radio Frequency.

**Scanner**

An electronic device used to scan barcode symbols and produce a digitized pattern that corresponds to the bars and spaces of the symbol. Its three main components are:

- Light source (laser or photoelectric cell) - illuminates a barcode.
- Photodetector - registers the difference in reflected light (more light reflected from spaces).
- Signal conditioning circuit - transforms optical detector output into a digitized bar pattern.

**SDK**

Software Development Kit.

**Symbology**

The structural rules and conventions for representing data within a particular barcode type (e.g. UPC/EAN, Code 39, PDF417, etc.).

**USB**

Universal Serial Bus. Type of serial bus that allows peripheral devices (disks, modems, printers, digitizers, data gloves, etc.) to be easily connected to a computer. A "plug-and-play" interface, it allows a device to be added without an adapter card and without rebooting the computer (the latter is known as hot-plugging). The USB standard, developed by several major computer and telecommunications companies, supports data-transfer speeds up to 12 megabits per second, multiple data streams, and up to 127 peripherals.

**WLAN**

A Wireless Local Area Network links devices via a wireless distribution method (typically spread-spectrum or OFDM radio), and usually provides a connection through an access point to the wider internet. This gives users the mobility to move around within a local coverage area and still be connected to the network.

**WPAN**

A Wireless Personal Area Network is a personal area network - a network for interconnecting devices centered around an individual person's workspace - in which the connections are wireless. Typically, a wireless personal area network uses some technology that permits communication within about 10 meters - in other words, a very short range.





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822002331

(Rev B)

February 2023