



# RMX-KB104 Keyboard Drawer Series User's Guide



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**kontron**

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Kontron reserves the right to make changes without notice in product or component design as warranted by evolution in user needs or progress in engineering or manufacturing technology. Changes which affect the operation of the unit will be documented in the next revision of this user's guide.

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# ➤ Safety Instructions

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## ► **Before You Begin**

Before handling the RMX-KB104 , read the instructions and safety guidelines on the following pages to prevent damage to the product and to ensure your own personal safety. Refer to the “Advisories” section in the Preface for advisory conventions used in this user’s guide, including the distinction between Warnings, Cautions, Important Notes, and Notes.

- ◆ Always use caution when handling/operating the computer. Only qualified, experienced, authorized electronics service personnel should access the interior of the computer. The power supplies produce high voltages and energy hazards, which can cause bodily harm.
- ◆ Use extreme caution when installing or removing components. Refer to the installation instructions in this user’s guide for precautions and procedures. If you have any questions, please contact Kontron Post-Sales Technical Support.



### **WARNING**



High voltages are present inside the chassis when the unit’s power cord is plugged into an electrical outlet. Turn off system power, turn off the power supply, and then disconnect the power cord from its source before removing the chassis cover. Turning off the system power switch does not remove power to components.

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## ► ***When Working Inside a Computer***

Before taking covers off a computer, perform the following steps:

- 1) Turn off the computer and any peripherals.
- 2) Disconnect the computer and peripherals from their power sources or subsystems to prevent electric shock or system board damage. This does not apply when hot swapping parts.
- 3) Follow the guidelines provided in “Preventing Electrostatic Discharge” on the following page.
- 4) Disconnect any telephone or telecommunications lines from the computer.

In addition, take note of these safety guidelines when appropriate:

- ◆ To help avoid possible damage to system boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.
- ◆ When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.



### **CAUTION**

Do not attempt to service the system yourself except as explained in this user's guide. Follow installation and troubleshooting instructions closely.





## ► ***Preventing Electrostatic Discharge***

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedure to reduce the risk of damage to components. Kontron strongly encourages you to follow proper ESD procedure, which can include wrist straps and smocks, when servicing equipment.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- ◆ When unpacking a static-sensitive component from its shipping carton, do not remove the component's antistatic packing material until you are ready to install the component in a computer. Just before unwrapping the antistatic packaging, be sure you are at an ESD workstation or grounded. This will discharge any static electricity that may have built up in your body.
- ◆ When transporting a sensitive component, first place it in an antistatic container or packaging.
- ◆ Handle all sensitive components at an ESD workstation. If possible, use antistatic floor pads and workbench pads.
- ◆ Handle components and boards with care. Don't touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.
- ◆ Do not handle or store system boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.

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# Preface

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# ► *How to Use This Guide*

This guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and upgrades.



**Note:** Additional technical information, BIOS updates, and drivers are available on our web site, [www.kontron.com](http://www.kontron.com), under Technical Support.

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The following is a summary of the chapter contents:

- ◆ **Chapter 1, Introduction**, describes the drawer design and provides drawer and keyboard specifications.
- ◆ **Chapter 2, Installation**, provides drawer mounting and keyboard installation instructions.

## ▶ *Customer Comments*

If you have any difficulties using this user's guide, discover an error, or just want to provide some feedback, please send us a message using the online form under "Contact Us" on our web site ([www.kontron.com](http://www.kontron.com)) under "Technical Support." Detail any errors you find. We will correct the errors or problems as soon as possible and post the revised user's guide in our online Support Library. Thank you.



**Note:** You may also use the online form on our web site to submit comments or concerns about our products, or request technical support.

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## ► *Advisory Conventions*

Four types of advisories are used throughout the user guides to provide helpful information or to alert you to the potential for hardware damage or personal injury. They are Notes, Cautions, and Warnings. The following is an example of each type of advisory. Use caution when servicing electrical components.



**Note:** A note is used to make helpful information stand out.

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**Important:** An important note indicates information that is important for you to know.

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### CAUTION

A CAUTION indicates potential damage to hardware and tells you how to avoid the problem.



### WARNING

A WARNING indicates the potential for bodily harm and tells you how to avoid the problem.



**Disclaimer:** We have tried to identify all situations that may pose a warning or caution condition in this user's guide. However, Kontron does not claim to have covered all situations that might require the use of a Caution or Warning.

## ***Unpacking***

When unpacking, follow these steps:

- 1) After opening the box, save it and the packing material for possible future shipment.
- 2) Remove all items from the box. If any items listed on the purchase order are missing, notify Kontron customer service immediately.
- 3) Inspect the product for damage. If there is damage, notify Kontron customer service immediately. Refer to “Guarantee and Warranty Policy” for the return procedure.



## ▶ **Regulatory Compliance Statements**

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

### ▶ **FCC Compliance Statement for Class A Devices**

The product(s) described in this user's guide has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

Changes or modifications not expressly approved by Kontron could void the user's authority to operate the equipment.



**Note:** The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interference or to be noncompliant with the appropriate standards for its intended use.

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### ▶ **CE Certification**

**CE** The product(s) described in this user's guide complies with all applicable European Union (CE) directives if it has a CE marking. The CE declaration of conformity is provided on the last page of this user's guide. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques. Although Kontron offers accessories, the customer must ensure that these products are installed with proper shielding to maintain CE compliance. Kontron does not offer engineering services for designing cabling systems. In addition, Kontron will not retest or recertify systems or components that have been reconfigured by customers.

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## ➤ **Guarantee and Warranty Policy**

### ➤ **Guarantee**

A thirty day money-back guarantee is provided on all standard products sold. Special order products are covered by our Limited Warranty, *however they may not be returned for refund or credit. EPROMs, RAM, Flash EPROMs or other forms of solid electronic media are not returnable for credit - but for replacement only.* An extended warranty is available. Consult the factory.

### ➤ **Refunds**

In order to receive a refund on a product for the purchase price, the product must not have been damaged by the customer or by the common carrier chosen by the customer to return the goods and the product must be returned complete (meaning all user's guides, software, cables, etc.) within 30 days of receipt and in an as-new and resalable condition. The "Return Procedure" must be followed to assure a prompt refund.

### ➤ **Restocking Charges**

Product returned *after 30 days, and before 60 days*, of the purchase will be subject to a minimum 20% restocking charge and charges for any damaged or missing parts. Products not returned within 60 days of purchase, or products which are not in an as-new and resalable condition, are not eligible for a credit return and will be returned to the customer.

### ➤ **Limited Warranty**

Effective April 1, 1998, all products carry a 2-year limited warranty. Within 2 years of purchase, Kontron will repair or replace, at our option, any defective product. Kontron will service the warranty for all standard catalog products for the first two years from the date of shipment. Please note: The 2-year warranty may not apply to special promotion items. Please consult the factory for warranty verification.

The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Kontron or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Kontron or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the user's guide.

No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Kontron reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.

## Return Procedure

For any Guarantee or Limited Warranty return, please contact Kontron Customer Service at 800-480-0044 or 858-677-0877 and obtain a Call Number. All product(s) returned to Kontron for service or credit **must** be accompanied by a Call Number. Freight on all returned items **must** be prepaid by the customer who is responsible for any loss or damage caused by common carrier in transit. Returns for Warranty **must** include a Failure Report for each unit, by serial number(s), as well as a copy of the original invoice showing the date of purchase.

To reduce risk of damage, returns of product must be in an Kontron shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from Kontron Customer Service at a nominal cost.

Kontron owns all parts removed from repaired products. Kontron uses new and reconditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Kontron repairs or replaces a product, its warranty term is not extended.

Kontron will normally return your replacement or repaired items via ground. Overnight delivery or delivery via other carriers is available at an additional charge.

Shipments not in compliance with this Guarantee and Limited Warranty Return Policy will not be accepted by Kontron.

## ► Limitation of Liability

In no event shall Kontron be liable for any defect in hardware, software, loss, or inadequacy of data of any kind, or for any direct, indirect, incidental, or consequential damages in connection with or arising out of the performance or use of any product furnished hereunder. Kontron's liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Kontron or its authorized agent.

Some sales items and customized systems are **not** subject to the guarantee and limited warranty. However in these instances, any deviations will be disclosed prior to sales and noted in the original invoice. **Kontron reserves the right to refuse returns or credits on software or special order items.**

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# Chapter 1

# Introduction

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## **Overview**

The RMX-KB104 keyboard drawer series features a rack mount drawer designed for a low-profile 104-key keyboard, a storage compartment, and a mouse pad. The series is available with or without the integrated 104-key keyboard with numeric keypad and Windows keys. The drawer comes in either a grey finish (as shown on manual cover) or a black finish to match our Omnix chassis. Additional colors are available by special order. See page 1 - 3 for logo and key lock placement.

The keyboard drawer is firmly mounted in a simple bracket offering the slide mounted capabilities for standard RETMA 19" equipment cabinets. The

keyboard drawer requires only 1.75" (1U) of rack space - the minimum amount available for a rack mounted device. A key lock is included for added security.

When the keyboard drawer is extended (approximately 11"), it will latch into place by use of the keylock on the front panel. To slide the keyboard back into the rack, press and hold the tabs on the outside of the rails to unlock it and then slide it back into the rack.

The RMX-KB104 keyboard drawer comes in four models:

- ◆ RMX-KB104 – Drawer, keyboard, mouse pad, slide assembly, grey finish with logo on left and key lock on right
- ◆ RMX-BKB104 – Drawer, keyboard, mouse pad, slide assembly, black finish with logo on right and key lock on left
- ◆ RMX-KB104/DRWR – Drawer, mouse pad, slide assembly, grey finish with logo on left and key lock on right
- ◆ RMX-BKB104/DRWR – Drawer, mouse pad, slide assembly, black finish with logo on right and key lock on left



## ➤ ***What's Inside***

- ◆ Keys for the key lock
- ◆ Rack mount slides, already attached to drawer
- ◆ 17 to 24-inch deep rear brackets, already attached to drawer
- ◆ 24 to 30-inch deep rear brackets for installation in racks deeper than 24 inches

## ➤ ***Keyboard Specifications***

### ➤ **Interface**

- ◆ Bidirectional, serial synchronous
- ◆ Keyboard communicates with system via clock and data line

### ➤ **Data Format**

- ◆ Data transfer to and from the keyboard
- ◆ IBM-compatible format: AT-mode, PS/2-mode
- ◆ Idle state - "Data & Clock" high
- ◆ PC mode: Idle state - "Data" "Low", "Clock" high

### ➤ **Data Output**

- ◆ Open drain

## ▶ Data Buffer

- ◆ All codes are buffered before being sent out

## ▶ Keyboard Sequence

- ◆ Alpha-N-key-rollover

## ▶ Automatic Repeat Function

- ◆ All keys have automatic repeat function.
- ◆ Delay time and repeat sequence can be modified through system (fixed for PC mode; 10Hz after 500ms delay)

## ▶ Reset Function

- ◆ The keyboard automatically generates a reset function.

## ▶ Keyboard Self-diagnostic Test

- ◆ After “powerup” or upon request from the system, the keyboard carries out a self-diagnostic test. After positive test, the keyboard sends code AA Hex. Any other code is interpreted as a failure State of operation indication through LED for NUM LOCK, CAPS LOCK and SCROLL LOCK

## ▶ Dimensions

- ◆ 15.9 x 1.4 x 7.1in (403.8 x 35.6 x 180.3mm)

## ➤ **Keyboard Cable**

- ◆ Approx. 9 feet long when fully extended with PS/2 connector
- ◆ 30 inches long in its normal coiled state

## ➤ **Operating Temperature**

- ◆ 0 o to +50 oC (32 o to 122 oF)

## ➤ **Storage Temperature**

- ◆ -40 o to +65 oC (-40 o to 149 oF)

# ► **Drawer Dimensions**

The dimensions shown below are for Models RMX-KB104 and RMX-BKB-104.

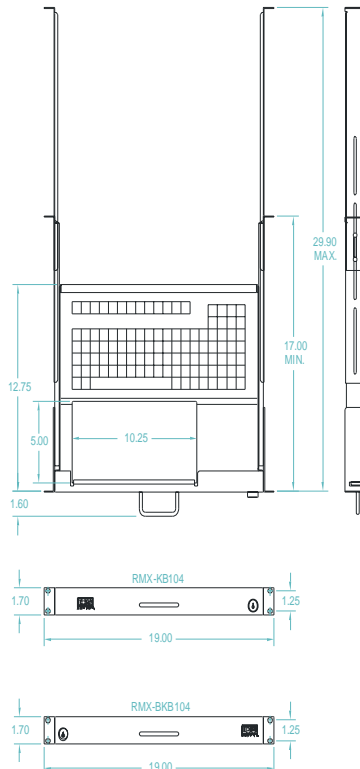


Figure 1-1. RMX-KB104 and RMX-BKB104 Dimensions

## ► **Drawer Dimensions**

The dimensions shown below are for Models RMX-KB104/DRWR and RMX-BKB-104/DRWR.

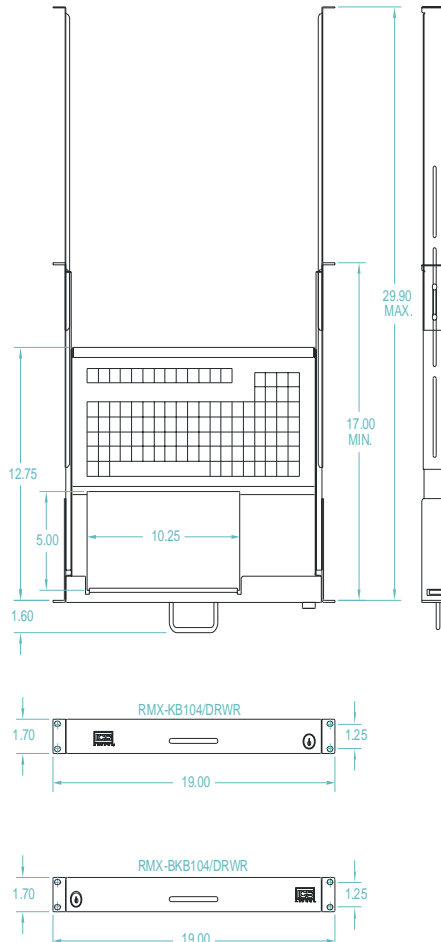


Figure 1-2. RMX-KB104/DRWR and RMX-BKB104/DRWR Dimensions

## ➤ **Connector Pin Assignments**

The following Connector Pin Assignments are for Models RMX-KB104 and RMX-BKB104.

The keyboard utilizes standard PS/2 keyboard codes for full IBM PC/AT compatibility. Connection between the keyboard and computer is made using a Mini-DIN connector.

Pin	Signal Name
1	DATA
2	Unused
3	GND
4	+5V
5	CLOCK
6	FREE
Shell	Unused

## Chapter 2

# Installation

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## ► **Installation**

The RMX-KB104 rack mount keyboard drawer series is designed specifically for rack mount enclosures or other types of industrial enclosures. This section describes how to install the drawer into a 19" RETMA industrial rack.

## ► **Rack Mounting**

Rack mounting consists of mounting the rails into an industrial rack and sliding the keyboard into place. Two sets of rear brackets are included to allow mounting in racks from 17 to 30 inches in depth. The installed brackets fit on 17 to 24 inch deep racks. For racks deeper than 24 inches, remove the four screws holding the installed rear brackets in place and install the longer 24 to 30-inch rear brackets with the four screws:

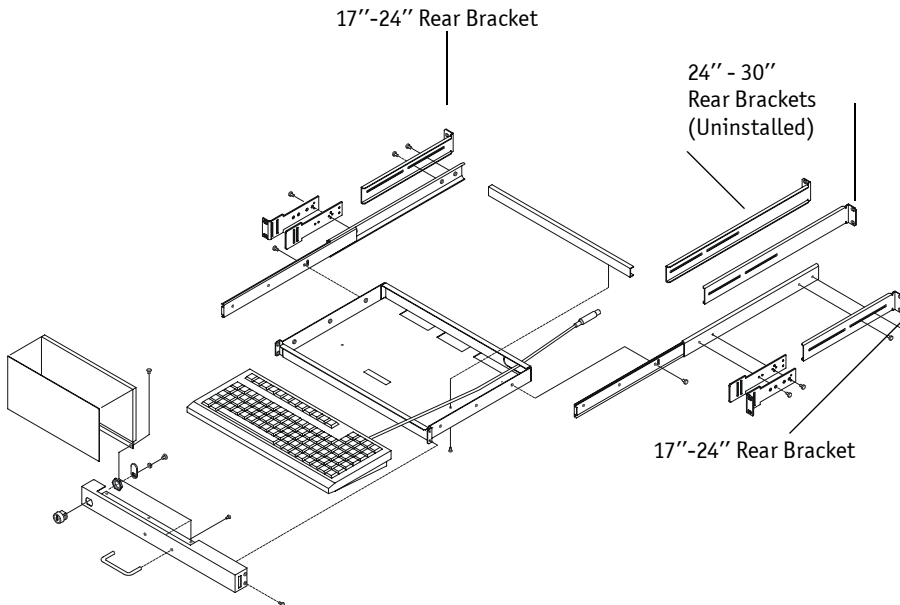


Figure 2-1. RMX-KB104 Assembly Drawing (Reference Only)



## ***Connecting the Keyboard***

If you purchased one of the keyboard drawer models that comes with an integrated keyboard, connect the keyboard to your computer as follows:

- 1) Turn off your computer. You should always turn off the computer before connecting or disconnecting a device.
- 2) Connect the PS/2 keyboard connector to the correct PS/2 port on the computer.
- 3) Power on your computer.

# ***Declaration of Conformity***

## **Information Technology Equipment**

**The product(s) covered by this declaration has a CE marking:**

RMX-KB104 and RMX-BKB104 rackmount keyboard drawer

**The European Union directives covered by this declaration:**

EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC

**The basis on which conformity is declared:**

**EN 55022:1994 Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment. (Class B)**

**EN 50082-1:1992 Immunity, Generic Requirements**

- IEC 801-2: 1991 Level 2

- IEC 801-3: 1994 Level 2

**EN 60950:1992 Safety of Information Technology Equipment**

The technical documentation required to demonstrate this product meets the requirements of the EMC Directive and the Low Voltage Directive has been compiled by Kontron and is available for inspection by the relevant enforcement authorities.

### **Attention**

The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations for use which must be observed when the product is taken into service to maintain compliance with the above directives. Details of these special measures and limitations are in the product manual.



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