1   General Notes

Congratulations on purchasing this PrehKeyTec product!

The MC 147 A alphanumeric keyboard is the ideal solution for fast and error-free input of machine-readable data.

Integrated reader modules provide the user with support for fast data entry:

- The OCR reader for reading passports, ID-Cards and similar documents.
- The magnetic stripe reader for credit cards, access cards, ATB tickets.

The ergonomic design has been selected to achieve optimum adaptation to human motor function. The two internal readers operate bi-directionally, so that documents and cards can be fed through the reader in both directions. This means that the input device is ergonomic and easy-to-use for both right and left-handed users.

This keyboard replaces manual input in all situations in which fast recording of ID documents and credit card documentation is required. Example applications are airline check-in, car rental, rental of valuable items, hotel check-in, and skiing equipment rentals.

All PrehKeyTec products undergo a continuous improvement process. For this reason, technical modifications may be made without notice.

We would like to point out that improper handling, storage, actions and/or modifications can lead to malfunctions and damage during use. If you modify our products as the end user, we are in no way responsible for any warranties or liability, unless you have obtained an express, written approval for your case of operation. This applies especially to unprofessional repair and maintenance.

Any claims for damages against PrehKeyTec – regardless of the legal reason – are excluded if we are not responsible for intent or gross negligence. The above limitation does not apply to claims for damages resulting from product liability laws.

These operating instructions apply only to MC 147 A keyboards.

If you have questions or problems about your keyboard, please contact us or your distribution partner.

Latest programming software and drivers, as well as further information is available on our web page https://www.prehkeytec.com. For additional help contact support@prehkeytec.de

2 Characteristics of the MC 147 A

The MC 147 A is characterized especially by its ergonomic and compact design.

It is equipped with USB cable and the following modules:
- Optical character recognition device (OCR)
- Magnetic stripe reader (MSR)
- Pointing device "Touchpad" (optional)

The optical character recognition (OCR) device supports reading passports, ID-cards and similar machine-readable documents with up to three lines of data according to ICAO9303. The MSR reads max. three tracks according to ISO 7810/7811.

The MC 147 A can be used with our virtual COM port driver or alternatively via our PKTUSB API.

With using our virtual COM port driver, the MC 147 A reads OCR and magnetic card data through one COM port. Data of all wedge devices are formatted following the appropriate protocol guidelines (ARINC, SITA, etc.).

Depending on the keypad, keyboards of the MCI family have up to 147 programmable key positions. In the alphanumeric keypad design, the keys of the alphabetic section are pre-assigned according to the functions of a standard MF2 keyboard, but also here all keys can be customized by our programming software.

Programming of the individual key positions is done with our easy-to-use programming software WinProgrammer. You can find the appropriate software packages, as well as additional notes regarding programming in the *Support* section of our web page https://www.prehkeytec.com.

⚠️ The figures in this manual might show pictures not exactly matching your customized keyboard type. However, this manual basically applies to all our MC 147 A products.

3　Installation

3.1　Contents of package

Before starting to use your keyboard, please check whether all the parts shown below are present and show no obvious signs of damage:

- MC 147 A keyboard
- Operating Instructions / Getting started sheet

Fig. 1　Package Contents

3.2　System requirements

The MC/MCI family keyboards have been developed for use with IBM-compatible systems. The keyboard is connected to USB and can be used with all popular operating systems.

For proper operation we recommend connecting the device always directly to the computer –without additional extension cables, etc.

The internal modules are connected to our integrated USB hub. For virtual COM usage, installation of our *CheckinPackage* is mandatory prior connecting the USB device.

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3.3 USB Connection

The keyboard uses standard USB HID hardware drivers provided by the operating system.

3.3.1 Virtual COM Port - Driver Installation

Additional driver software is required to use the wedge devices (MSR, OCR) via virtual COM connection. Install the *PrehKeyTec Virtual COM Port* driver software before connecting the device to the PC. This driver and the utility *CheckinConfigurator* are included in our *CheckinPackage*.

Please see the Readme file included in the *CheckinPackage* for details about installation and usage. A description for unattended installation of the package is also available in there.

3.3.2 USB Cable Installation

To provide problem-free operation of the keyboard using USB, it must be insured that the USB interface is supported by the operating system.

In addition, ensure that USB legacy support is activated in the BIOS of your PC, if the keyboard should be also active directly after booting.

Fig. 2   USB A-Type Plug

- Install our *CheckinPackage* to preinstall the *PrehKeyTec Virtual COM Port* drivers.

- Plug in the USB cable into an USB socket of your PC.

- Standard HID drivers for the keyboard part will be automatically installed by the operating system. Then the keyboard is ready to use.

- If previously preinstalled, the virtual COM port drivers also will be installed automatically. The COM port number and other settings can be adapted with our *CheckinConfigurator*.

3.3.3 Functional check

After power on the keyboard executes a self-test - all four LEDs light up for a short time. Then depending on the status of the NumLock, CapsLock and ScrollLock, the associated keyboard LEDs light up. Your MCI keyboard is now ready for use.

In addition, the Accept LED displays status information for the MSR / OCR reader. As long as the OCR/MSR is not initialized by the user application, the Accept LED will be red.

Testing the modules OCR/MSR is possible in our *CheckinConfigurator* and alternatively in our PKTUSB API Demo application.

3.4 Alternative use case: PKTUSB API

In alternative environments/markets, you can easily integrate the modules OCR/MSR into your software with our PKTUSB API. In this case, you don't have to install any hardware drivers, directly use our API inside your software.

The API, a graphical demo and source code examples are included in our PKTUSB API package.

4 Modules

4.1 OCR Reader

This product is equipped with our OCR (optical character recognition) module "P6" which supports reading both OCR data and magnetic cards through *one* COM port (either RS232 or virtual USB).

The OCR device reads passports and similar machine-readable documents with up to three lines of data. Below some key features:

- Swipeless insertion document feed

- Reads OCR-B data from machine-readable passports with 2 lines and maximum of 44 characters

- Reads machine-readable visas with 2 lines and max. 44 characters or 2 lines with 36 characters

- Reads machine-readable travel documents with 2 lines and 36 characters, or 3 lines and 30 characters

Fig. 3   OCR Reader

The entire document is evaluated and sent to the host using the appropriate protocol. A successful read is indicated by a green Accept LED, a beep is output. In case of a bad read, the LED turns red and an error beep (3x) will be output. Parameters for sound and LED can be configured with our utility *CheckinConfigurator*.

Open the booklet and only insert the machine-readable part into the reader slot.
The OCR data lines must be located on the bottom side, facing towards the user.
Take care to fully insert the OCR page until it reaches the reader bottom.

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4.2 Magnetic stripe reader (MSR)

Unlike our standard keyboards, the MC 147 A sends the module data through *one* COM port - in conjunction with the OCR data.

The MSR module reads magnetic cards in accordance with ISO 7810 and 7811 (track 1, 2 and 3).

The entire content of the card is evaluated, good track data are then sent to the host using the appropriate protocol. A successful read is indicated by a green Accept LED, a beep is output. In case of a bad read, the LED turns red and no beep will be output.

Swipe direction

The magnetic card can be swiped through the MSR slot in both directions. This provides easy and ergonomic use for both right- and left-handers.

Parameters for sound and LED can be configured with our utility *CheckinConfigurator*.

Fig. 4 Magnetic Stripe Reader

⚠️ Please hold the magnetic card near the upper edge during a swipe.
The magnetic stripe must be facing down, towards the rear side of the keyboard.

4.3 Pointing device – Touchpad (optional)

With the optional touchpad, your MCI keyboard also integrates the functionality of a mouse.

The touchpad does not require special drivers, standard OS HID drivers for an USB mouse are installed automatically. Thereafter, the touchpad is immediately ready for use.

The mouse arrow is controlled by moving your fingers on the touchpad surface. To do this, touch the touchpad with a fingertip and move your finger, pressing lightly, in the desired direction. The mouse arrow then follows the movement of your finger.

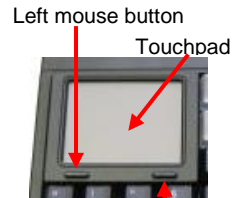The two buttons below the touchpad correspond to those of a two-button mouse.

Left mouse button

Touchpad

⚠️ The touchpad is a capacitive system. It is not possible to operate the touchpad while wearing thick gloves or using other non-conducting objects.

Right mouse button
Fig. 5 Touchpad

5 Additional Features

PrehKeyTec products are more than "just" keyboards. Below a brief list of additional features which can be included in our products. Please contact our sales representatives for details.

5.1 Flexible programming of key codes

All key positions can be changed to customer's demands. In the alphanumeric keypad design, the keys of the alphabetic section are pre-assigned according to the functions of a standard MF2 keyboard, but also here all keys can be customized by our programming software.

Programming of the individual key positions is done with our easy-to-use programming software WinProgrammer. You can find the appropriate software packages, as well as additional notes regarding programming in the Support section of our web page https://www.prehkeytec.com.

5.2 Firmware Update

The keyboard firmware as well as the module configuration can be updated with our *CheckinConfigurator*. Please contact support@prehkeytec.de for details and assistance.

5.3 TCO Features

To reduce service costs, our keyboard supports so-called TCO features:

- God and Bad read counters for MSR and OCR
- Power-on time
- Counting individual key presses
- Static information (Serial number, Production date, Product code)
- Firmware information
- Other TCO features on request. Please contact support@prehkeytec.de for details.

For testing, several TCO data of your keyboard can be read out using the *CheckinConfigurator*.

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6 Maintenance and Troubleshooting

6.1 Cleaning the OCR module

1) Turn the back of the keyboard towards the operator to face the OCR cover.

2) Slightly pull the cover in the mid bottom area to unlock it. While doing so, gently push the cover with both hands upwards to remove it.

3) Clean the glass with a soft cloth moistened with glass cleaner.

4) Afterwards put the cover back in place and gently push it downwards until it clicks.

⚠️
> Caution: Do not use harsh and abrasive materials for cleaning the glass!
> We advise to use a lint-free soft cloth which is moistened with glass cleaner.

6.2 Cleaning the MSR module

To clean the magnetic read head, we recommend using common MSR cleaning cards.

1) Remove cleaning card from the pouch.

2) Place the cleaning card into the card reader like a credit card.

3) Swipe cleaning card through the reader several times. Repeat the process if necessary.

6.3 Technical Support

In case of questions and troubleshooting please contact our Technical Support Team:

Email: support@prehkeytec.de

Phone: +49 9776 / 7046-222

7 Annex

7.1 Technical data

7.1.1 OCR Reader

- Swipeless document feed
- OCR-B data of machine-readable passports with 2 lines and maximum of 44 char
- Machine-readable visa with 2 lines and max. 44 char. or 2 lines with 36 char
- Machine-readable travel documents with 2 lines and 36 char., or 3 lines and 30 char
- Good/Bad read indicator (LED, Buzzer)

7.1.2 MSR Reader

- Bidirectional card swipe.
- Reads magnetic cards in accordance with ISO 7810 and 7811 (track 1, 2 and 3)
- Good/Bad read indicator (LED, Buzzer)
- IATA FOID compliant (Masking of credit-card data, optional)

7.1.3 Electronics

Interface:	USB 2.0 High-Speed
Power consumption:	< 500 mA (without external devices)
Keyboard LEDs:	ACCEPT, NUM LOCK, CAPS LOCK, SCROLL LOCK

7.1.4 ESD and EMC behavior

Unwanted emission	EN55022, class A FCC subpart 15 class A
Immunity characteristics	EN55024

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7.1.5 Connection assignment

Fig. 12.1 USB plug

USB Connector A type	
1	VCC
2	USB D-
3	USB D+
4	GND

7.1.6 Climatic parameters

Temperature ranges
Storage/transport   -40°C to +60°C
Operation   +5°C to +40°C
Relative humidity   5% to 93%
Air pressure   700hPa to 1060 hPa
Climatic test category   0/050/21 according to DIN-IEC 68, part 1, appendix A

7.1.7 Mechanical system

Keys
Actuating force   0.6 N
Stroke strength   10N, 1 min.
Lifetime $> 30 \times 10^6$ operations per contact element (typical value)
Keystroke   3.5 mm
Grid spacing   19 mm

7.1.8 Protection class

IP 54 according to DIN 40050/IEC 529
Only valid for the keypad in the direction of actuation

7.1.9 Material and surfaces

Housing   ABS
Guide frame   Polystyrene
Integrated circuit foil   Polyester foil
Key caps   PBT/POM
Contact mat   Silicone rubber

8 Declaration of Conformity

This is to certify that statements of compliance exist for the MC 147 A keyboard.

Of course, you can request us to send you these if you provide the precise type designation (see the type label on the bottom of the device).

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Fax: +49-9776 / 7046-299

Email: support@prehkeytec.de

9 FCC Warning Statement

NOTE: This equipment 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.