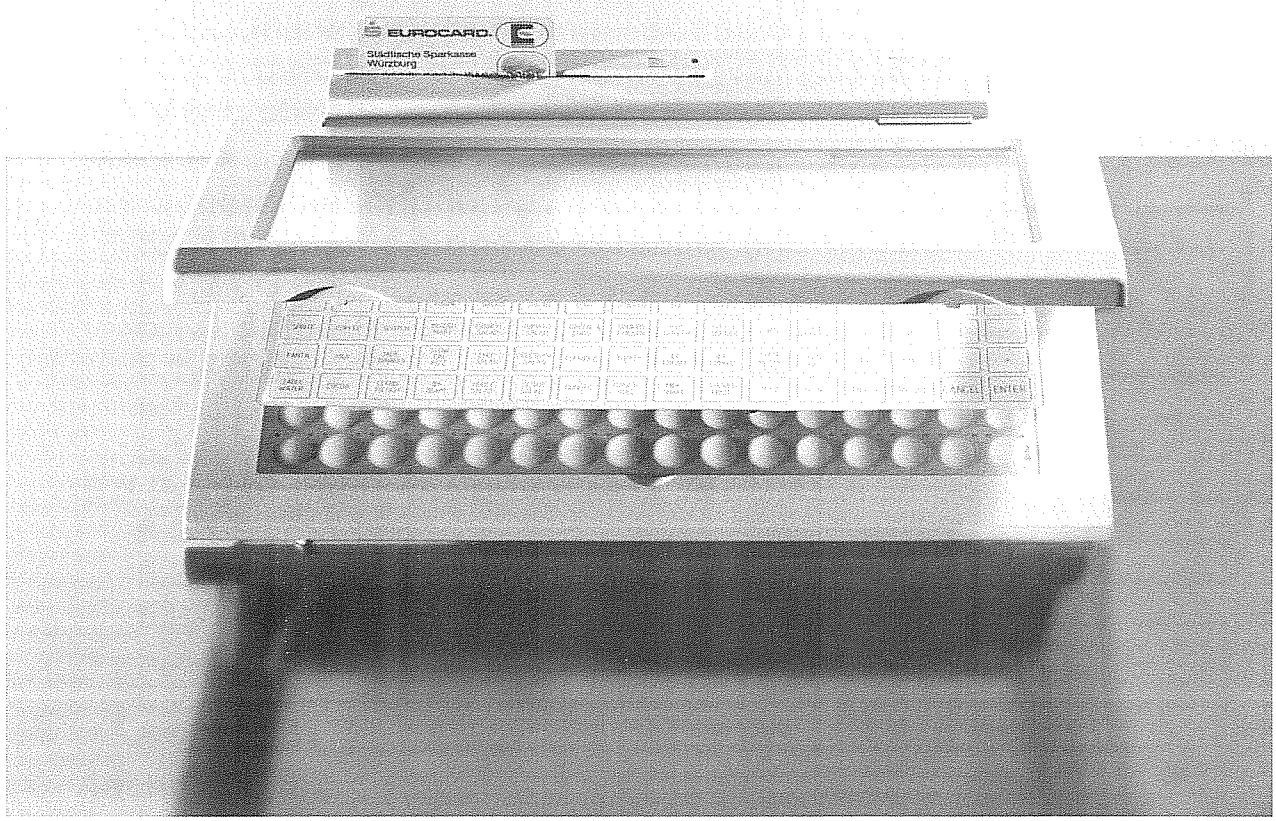
PREH

Rheinmetall Elektronik

Preh Commander® MR 128 W/X

Operating Instructions and Technical Data



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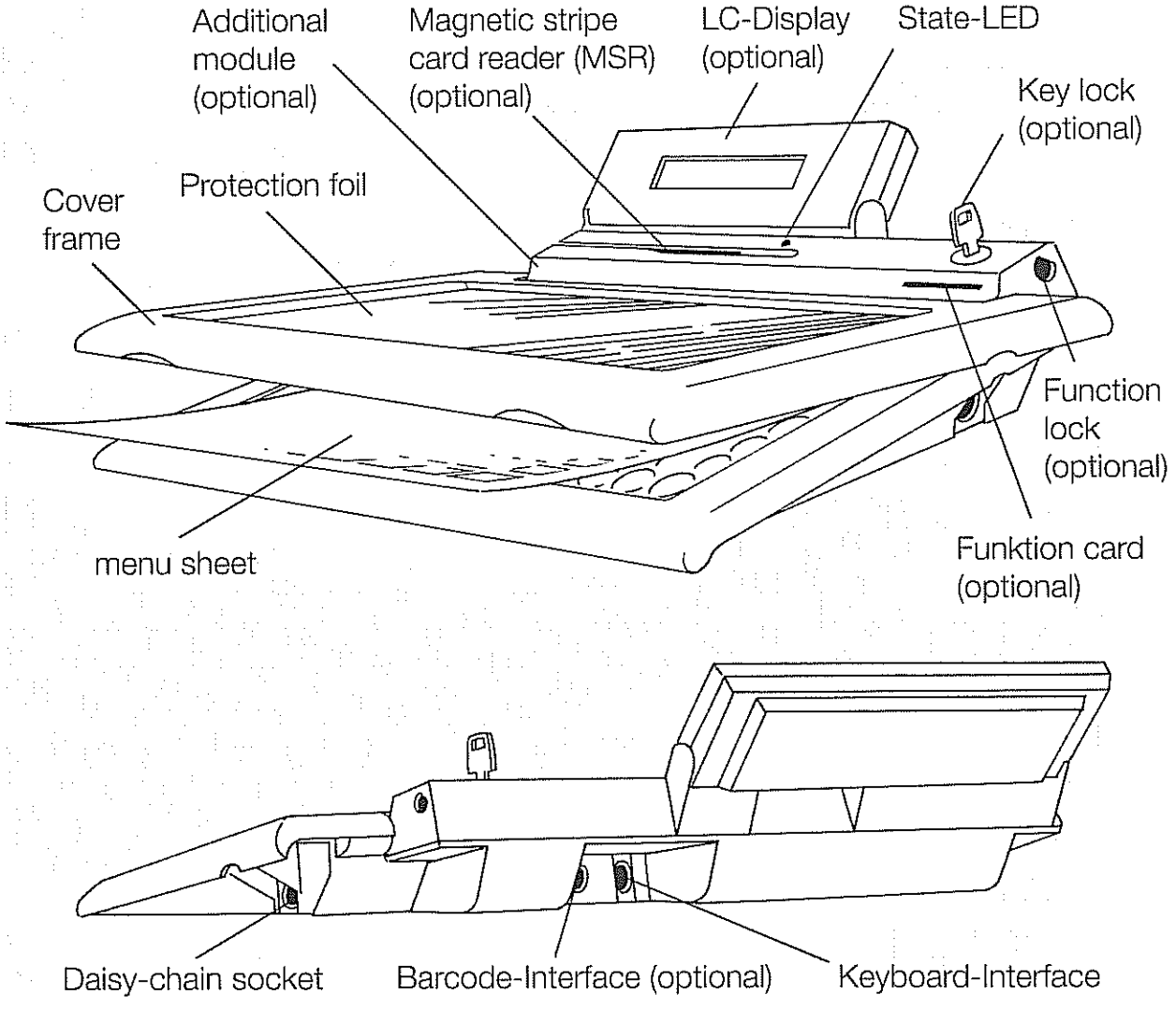


1 General information

The Preh Commander® MR 128 W/X with its IP-54 protected menu sheet technology and its modular flexibility is a compact data input system for customer specific system solutions.

The keyboard consists of a tactile short travel keyboard with a replaceable sheet (labelled or labelable; 8 x 16 key positions). This sheet can be exchanged with other sheets (e. g. breakfast, lunch or dinner for restaurants) after the cover frame is opened up. This cover frame can be swivelled into two notch positions.

The universal modular construction of these compact keyboards permits easy adaptation to specific system requirements. The following modules can be combined with each other as required: MSR, LC display and key lock, function lock or function card reader.

The Preh Commander MR 128 W/X provides 128 key positions to meet changing needs. Up to 128 program levels are available for each key position; these can be assigned any strings of characters. The individual key positions are programmed either online using a connected MF keyboard or menu-driven using the Preh Programmer software (included in the scope of delivery). In both cases the keyboard codes are stored permanently in the internal EEPROM in the keyboard, and can be edited at any time.

2 Installation

2.1 Package contents

Before putting your keyboard into operation, please check to make sure that all of the parts listed below are in the package and undamaged:

1 Preh Commander MR 128 W/X keyboard
1 software disk „Preh Programmer“
1 keyboard cable with 8-pin mini-DIN connector (at the keyboard end) and 6-pin mini-DIN connector (at the computer end)

or (with AT systems)

1 keyboard cable with 8-pin mini-DIN connector (at the keyboard end) and 5-pin DIN connector (at the computer end)

or (with RS232 systems)

1 keyboard cable with 8-pin mini-DIN connector (at the keyboard end) and 9-pin sub-D jack and jack plug (at the computer end)

2.2 Installation of the keyboard

Before starting work with the Preh Commander MR 128 W/X you should read these notes and pay attention to the following.

2.2.1 System requirements

The Preh Commander MR 128 W/X was developed for use with IBM AT systems (80286 processor or higher), PS/2 or compatible systems. The operating systems that can be used are either DOS version 3.3 (or higher), WINDOWS 95, WINDOWS NT, OS/2 or UNIX.

2.2.2 Cable installation

Installation should be carried out **while the computer is switched off**. If a keyboard is already connected to the computer, please disconnect it. You can connect this keyboard to the side daisy-chain socket of the Preh Commander MR128 W/X and run it parallel.

2.2.2.1 Installation in PS/2 systems

First insert the 6-pin mini-DIN connector of the connecting cable into the socket provided at the computer end.

The 8-pin mini-DIN connector of the connecting cable is plugged into the keyboard interface (see sketch on Page 4) of the Preh Commander MR 128 W/X.

6-pin mini-DIN connector
(System)

8-pin mini-DIN connector
(Keyboard)

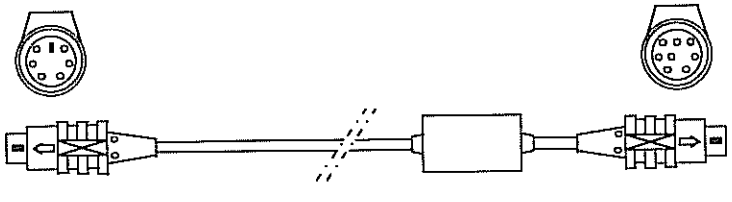


Fig. 1: PS/2 cable

2.2.2.2 Installation in AT systems

With AT systems, first insert the 5-pin DIN connector of the connecting cable into the socket provided at the computer end.

The 8-pin mini-DIN connector of the connecting cable is plugged into the keyboard interface (see sketch on Page 4) of the Preh Commander MR128 W/X (if necessary using a DIN/mini-DIN adapter).

5-pin DIN connector
(System)

8-pin mini-DIN connector
(Keyboard)

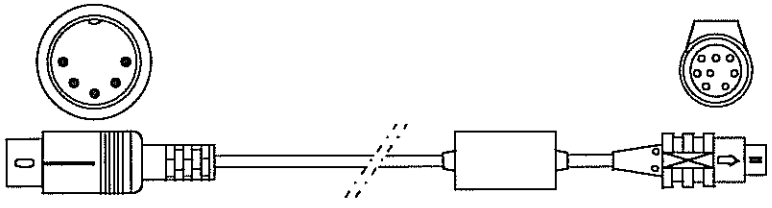


Fig. 2: AT cable

2.2.2.3 Installation in RS232-systems:

To operate the RS232 version you require not only the RS232 data cable but also a suitable power pack with an output voltage of $5V_{DC}$. You can order a suitable plug-type power pack from the PREH factory.

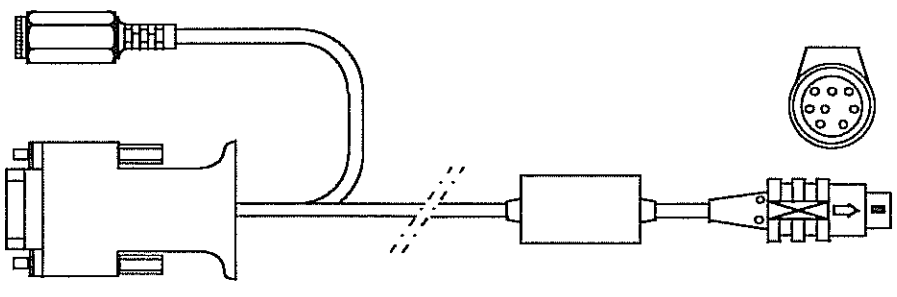
Insert the 9-pin sub-D plug of the data cable into an unused COM port in your computer.

The 8-pin mini-DIN connector of the connecting cable is plugged into the keyboard interface (see sketch on Page 4) of the Preh Commander MR 128 W/X.

The jack plug at the computer end is required to supply the keyboard with electricity and is connected up last.

Jack plug
(Power pack)

8-pin. mini-DIN connector
(Keyboard)



9-pin sub-D jack
(System)

Fig. 3: RS232 cable

3 First start-up

3.1 Important note

In the original state as delivered, there are no characters assigned to the keyboard, that is, when you connect up the keyboard and press a key, there is **no** character output.

To be able to work with the Preh Commander MR 128 W/X, you must first load a keyboard assignment table into the keyboard, or create a new table. To do this, either use the disk supplied (Preh Programmer) or use the so-called „Online programming" option. You will find notes on this later in corresponding chapters of these operating instructions.

3.2 Functional test

3.2.1 PS/2 and AT systems

After you have switched on your computer, the keyboard is ready for operation after approx. 1 second. If you now press 3 or more keys simultaneously, it should react by giving a continuous beep.

3.2.2 RS232 systems

In the RS232 version, the Preh Commander MR 128 W/X is set to the following default data format:

9600 baud, odd parity, 8 data bits, 1 stop bit.

After you have switched on the operating voltage of the keyboard (additional power pack), the keyboard is ready for operation after approx. 1 second. If you now press 3 or more keys simultaneously, it should react by giving a continuous beep.

3.2.3 Interface settings (AT, XT, RS232 interfaces)

The Preh Commander MR 128 W/X can be operated at the following interfaces:

- AT interface
- XT interface
- RS232 interface (optional extra only in conjunction with factory-fitted RS232 module)

The interface is always factory-set to the AT interface (not in the RS232 version). If you wish to operate your keyboard at a different interface, you can redefine this at any time.

While the operating voltage is being switched on, the following key combinations must be kept pressed (approx. 2 seconds):

AT interface: Key positions **„A01“** and **„B01“**
XT interface: Key positions **„A01“** and **„C01“**
RS232 interface: Key positions **„A01“** and **„D01“**

Successful switchover is acknowledged with a beep.

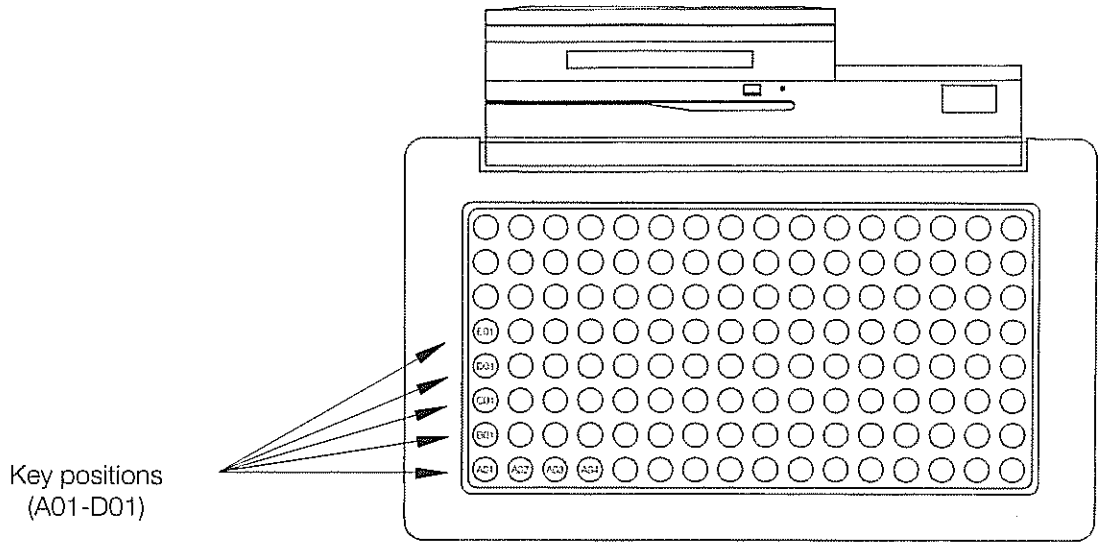


Fig. 4: Key positions MR 128 W/X

4 Programming the keyboard

4.1 Programming with the Preh Programmer

4.1.1 General information on the Preh Programmer

The software for programming the individual key positions is on the supplied disk (3 $^{1}/_{2}$ ") **PREH PROGRAMMER MWX / MC / MR / PC-POS/KVK**.

Before using the program, please copy all files in the main directory of the Preh Programmer disk onto the hard disk of your computer.

The Preh programmer from version 4.1.0 can run under DOS, WINDOWS 3.1 and WINDOWS 95. If you wish to program your Preh Commander MR 128 W/X under a different operating system, you also have the option of „Online programming" (see Chapter 4.2).

Start the program under **MS-DOS** by entering „PREH-MWX <Return>" (English Help).

For German help please enter „PREH-MWX/GR<Return>".
Press the F1 key to obtain help on current menu item.

If you prefer to work under **WINDOWS 3.1** or **WINDOWS 95**, you can either doubleclick the program in the File Manager or in the Explorer, or enter „PREH-MWX <Return>" at the DOS prompt.

The program is menu-driven and can also be operated using the mouse. With the Preh Programmer you can now generate your own keyboard assignments and store them permanently in the internal keyboard EEPROM. The assignment is stored until you replace it with a different assignment. This also applies in the case of a power failure or if the operating voltage is switched off.

You can also save the keyboard assignment table you have generated as a file. As well as the additional backup option, you also have the option of generating different assignment tables for the keyboard. You can then load these into the keyboard EEPROM, depending on the application, so that you have one keyboard for different applications.

4.1.2 Preh Programmer - example

In the following example, the key position A01 is to be assigned the string „dir/p <Return>".

1. Start the Preh Programmer (see Chapter 4.1.1).
2. Load the current keyboard assignment with the command FILE - READ KEYTABLE.
3. Select the required language in the menu CONFIGURATION - KEYB language (e.g. US for English).
4. Use the menu EDIT - KEYS to select the required key position (with the mouse or the cursor keys) and then press <Return>.
5. Enter „dir /p{Return}" in the Assignment line and press <Return>.
6. Exit the „Edit Key" menu by pressing <Esc>. The key you have just programmed should now be highlighted. Press <Esc> once more to return to the main menu.
7. Write the new assignment into the keyboard memory with the command FILE - WRITE KEYTABLE.

Note: You can exit all submenus by pressing the <Esc> key.

Remember to save your key assignment so that in the event of an error you can reload your key assignment into the keyboard.

The programming of the „A01" key position is now complete. You can now exit the Preh Programmer.

You will find further support for operating the Preh Programmer in the main directory of the disk in the file PP4100E.TXT.

4.2 Online programming

4.2.1 General information about online programming

As well as programming a Preh keyboard with the Preh Programmer, you can also program it using an MF2 keyboard connected to the daisy-chain socket. Programming can be effected in the following two modes: string online programming and single-key online programming.

These programming modes are started by pressing the respective hotkey on the MF2 keyboard. The hotkeys on the MF2 keyboard can be defined in the Preh Programmer menu „EDIT - HOTKEY0" or „EDIT - HOTKEY1". The default setting for Hotkey0 is the SYS key („Alt+PrtScr" or „Alt+Druck") and for

Hotkey1 is the Ctrl+SYS or Strg+Alt key combination („Ctrl+Alt+PrtScr" or „Strg+Alt+Druck").

String online programming:

In this mode, complete strings can be programmed at normal level with the attribute Keyclick.

1. Press HOTKEY0 (on the MF2 keyboard).
2. Press the key to be programmed (on the Preh Commander MR 128 W/X).
3. Enter the string (on the MF2 keyboard).
4. Press HOTKEY0 (on the MF2 keyboard) to exit.

Single-key online programming:

In this mode, a standard key is programmed with the attributes Keyclick, Autorepeat and MakeBreak.

1. Press HOTKEY1 (on the MF2 keyboard).
2. Press the key to be programmed (on the Preh Commander MR 128 W/X).
3. Press the standard key (on the MF2 keyboard).

Online programming works like a recorder function, that is, the entire input is sent to the computer and also saved in the key assignment.

4.2.2 Online programming - example

In the following example, the key position B01 is to be assigned the string „dir/p <Return>".

1. Activate string online programming by pressing the key combination „Alt" + „PrtScr" or „Alt" + „Druck". The Scroll Lock LED on the daisy-chained keyboard must flash rapidly.
2. Press the required key position (here „B02") on the Preh Commander MR 128 W/X. The Scroll Lock LED on the daisy-chained keyboard must now flash slowly.
3. Enter the following string on the MF2 keyboard: „dir/p".
4. Now press the Return key on the MF2 keyboard.
5. Exit programming mode by pressing the combination „Alt" + „PrtScr" or „Alt" + „Druck" on the MF2 keyboard.

Programming is now complete, the Scroll Lock LED has stopped flashing, and the keyboard is ready.

4.3 Important note on programming

In all programming modes, please make sure that the Preh Commander MR 128 W/X is not disconnected from the computer, or the operating voltage switched off, during the transmission of the keyboard assignment table.

If this should nevertheless happen, and the keyboard is then subsequently blocked, then you must re-initialise it to the interface of your system (see Chapters 3.2.1 to 3.2.2).

4.4 Menu sheets

The customer and programming-specific menu sheet are generally made of paper and can be generated by the customer himself using standard software or by using the Preh Win Programmer, Version 1.x or higher.

5 Modules

5.1 General description

If you have acquired a Preh Commander MR 128 W/X without modules, it is possible to upgrade it with the modules MSR, keylock, function lock, function card and LC display using an additional module housing and, if required, by replacing the keyboard cover. For further information please contact your keyboard dealer or refer directly to the Preh factory (see also the addresses on the back page of the operating manual).

5.1.1 Magnetic stripe card reader (MSR)

The MSR module is integrated by means of an additional module housing mounted on the keyboard (see sketch on Page 4).

The Preh Commander MR 128 W/X can be fitted with a double track reader (tracks 1 and 2 or tracks 2 and 3) as well as with a three track reader.
The MSR reads all magnetic cards in accordance with ISO 7810 and 7811.
The MSR registers all of the information on the magnetic card. After a valid read operation, a LED signal is given (on the additional module).

All tracks are enabled by default, and the data are automatically transmitted to the computer. After a valid readout the entire contents of the card are displayed with the sentinels (start and stop characters) of each track.

5.1.2 LC display

The LC display is mounted on the keyboard housing by means of an additional module housing (see sketch on Page 4) and has a swivel range of 30°.

The display is backlit and is available in sizes of 2 x 24 characters, 2 x 20 characters or 4 x 20 characters, and runs in yellow-green mode.

The LCD is controlled by special application software (in the „PREHLCD" directory on the Preh Programmer disk). An additional power pack is required to operate the 4 x 20 character version. You will find detailed instructions on use in the file „PREHLCDE.TXT".

5.1.3 Barcode decoder (BCR)

The integrated barcode electronics can decode the following bar codes:

- CODABAR
- 2/5 Interleaved
- Code 39
- Code 128
- MSI
- EAN/UPC/JAN.

Other barcode readers (data pens with different resolutions, laser scanners, touch scanners as well as barcode readers in hand-held or fixed versions) can be connected via the interface (9-pin sub-D) (see sketch on Page 4).

When a valid barcode has been detected, the relevant sequence of figures is transmitted to the computer as standard.

5.1.4 Key lock

The key lock module is integrated by means of an additional module housing mounted on the keyboard (see sketch on Page 4). A key lock with 4 positions provides access control (customer-specific software).

When the key lock is actuated, the new key position is transmitted to the computer as the default position.

For example, if the key is turned from position 0 to position 1, a „1" appears on the screen.

5.1.5 Daisy-chain socket (external keyboard)

The Preh Commander MR 128 W/X is equipped with a 5-pin-DIN connector as standard for connecting an additional keyboard (see sketch on Page 4).

This additional keyboard can be connected or disconnected during operation. It can be operated parallel to the Preh Commander MR 128 W/X.

Additional units with integrated keyboard switchover (e.g. scanners) can also be connected to the daisy-chained socket. Should problems occur here, please refer to section 5.2.2.

5.1.6 Functioncard, -lock

The function card and function lock modules are integrated by means of an additional module housing mounted on the keyboard (see sketch on Page 4). They provide access control (customer-specific software).

When the function card or function pen is inserted or removed, the respective coded numbers are transmitted by default to the computer.

For example, if key No. 053 is inserted, then 053 also appears on the screen.

5.2 Programming the modules

The individual modules can be configured using the Preh Programmer, and can thus be adapted to your system.

In order to configure the individual modules, you must start the Preh Programmer (see Chapter 4.1).

In the EDIT - MODULES menu you can change the following functions for the individual modules:

5.2.1 Barcode

- **AutoInput:** When a valid barcode is detected, the string of the code is transmitted automatically as standard (highlighted). If AutoInput is disabled (not highlighted), automatic output is suppressed.
- **Header:** If you would like to send one or more characters ahead of the barcode, you have the option of entering a character or a string here. The header is then transmitted ahead of the barcode to be transmitted.
- **Terminator:** Like the header, but sent after the barcode.

  Example: „BCR:{Space}" was programmed as the header, „End of BCR" was programmed as the terminator. The read-in barcode here should be: „12345". The following now appears on the screen: „BCR : 12345 End of BCR".
- **RS232 Interface:** The interface parameters for an RS232 barcode reader can be entered here.

5.2.2 Ext. Keyboard

- **Init and send LED data:** When an additional keyboard is connected, the keyboard status (Num Lock, Caps Lock, Scroll Lock LEDs) is passed on to this connected keyboard as standard (highlighted). If additional units with integrated keyboard switchover do not react after the keyboard status is passed, initialisation must be disabled (not highlighted) to operate them.

5.2.3 Functioncard, -lock

- **AutoInput:** When the functioncard or function pen is inserted or removed, the card or pen number is automatically displayed by default as standard (highlighted). If AutoInput is disabled (not highlighted), automatic output after the functioncard or function pen is inserted or removed is suppressed.
- **Insert header:** If you would like to send one or more characters in advance when inserting the function key or function pen, you have the option of entering a character or a string here. The insert header is then transmitted ahead of the number of the function card or function pen position.
- **Insert terminator:** Like the insert header, but sent after the number of the functioncard or function pen position.
- **Remove header:** If you would like to send one or more characters in advance while inserting the function key or function pen, you have the option of entering a character or a string here. The remove header is then transmitted ahead of the number of the functioncard or function pen position.
- **Remove terminator:** Like the remove header, but sent after the number of the functioncard or function pen position.

5.2.4 Key lock

- **AutoInput:** When the key is turned, the new key lock position is transmitted automatically as standard (highlighted). If AutoInput is disabled (not highlighted), automatic output after the key is turned is suppressed.
- **Header:** If you would like to send one or more characters ahead of the new key lock position, you have the option of entering a character or a string here. The header is then transmitted ahead of the number of the key lock position.
- **Terminator:** Like the header, but sent after the key lock position.

5.2.5 KVK reader

Not integrated in this keyboard family.

5.2.6 MSR

- **AutoInput:** If a valid magnetic card is passed through, the contents of the card are transmitted automatically as standard (highlighted).
  If AutoInput is disabled (not highlighted), automatic output is suppressed.

- **Track1, Track2, Track3:** All three tracks are read and transmitted (only possible with three-track reader) as standard (highlighted). If you wish to disable one or more tracks, you only have to deactivate the track or tracks (not highlighted). These are not transmitted even if the card data are valid.
- **Header:** If you would like to send one or more characters ahead of the various magnetic card tracks, you have the option of entering a character or a string for each individual magnetic track here. The header is then transmitted ahead of the contents of the respective magnetic card track.
- **Terminator:** Like the header, but sent after the contents of the respective magnetic card track.
- **BadReadString:** Here you can enter one or more characters that are transmitted if the contents of the card are invalid. If a track is not correctly read when a magnetic card is passed through, the BadReadString for the track in question is transmitted between the relevant header and terminator.
- **Sentinels:** The start and stop characters of the individual magnetic tracks are also transmitted as standard (highlighted). If sentinels are disabled (not highlighted), the start and stop characters are not transmitted.
- **Checksum:** As standard (not highlighted) the LRC byte for the individual tracks is checked but not transmitted. If you wish to transmit the LRC byte as well, you must enable (highlight) Checksum.

6 Technical data

6.1 Electronics

Supply voltage: $5V_{DC} \pm 5\%$

Current consumption: max. 150 mA, typically 80 mA

Internal programmable electronics with 8 kB EEPROM data memory
Interface:

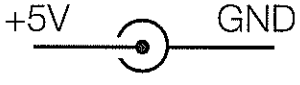
- IBM PC-XT/AT, PS/2 and compatible systems
- bi-directional, serially synchronous or serially asynchronous

Data cables: PS/2 data cable; AT data cable or RS232 data cable as optional extras

Plug/socket assignment of data cables (for drawings see Chapters 2.2.2.1 to 2.2.2.3):

Mini-DIN connector 6-pin	Mini-DIN connector 8-pin	DIN connector 5-pin	Sub-D jack 9-pin	
1 data	1 NC	1 clock	1	
2 NC	2 clock	2 data	2	TXD (keyboard)
3 GND	3 +5V	3 NC	3	RXD (keyboard)
4 +5V	4 data	4 GND	4	
5 clock	5 GND	5 +5V	5	GND
6 NC	6 NC		6	
	7 NC		7	RTS (internal)
	8 NC		8	CTS (internal)
			9	RI (NC)

Jack plug Power pack



6.2 ESD and EMC characteristics

CE approval (see also Chapter 10)

Stray radiation:

- EN55022, Category B
- FCC Subpart 15. Class A

Interference stability:

- Resistance against electromagnetic HF field in accordance with DIN VDE 0843-2
- Resistance against electrostatic discharge in accordance with DIN EN 61000-4-2, resistance limit 8 kV
- Resistance against rapid transient electrical disturbances in accordance with DIN EN 61000-4-4, test level 0.5 kV

6.3 Climatic parameters

Temperature ratings

Storage and transportation: -10°C to +60°C
Operation: ± 0°C to +50°C

Relative humidity

5% to 93%

Air pressure

700 hPa to 1060 hPa

Climatic class

0/050/21 in accordance with DIN-IEC 68, Part 1, Appendix A

6.4 Mechanics

A) Keys:

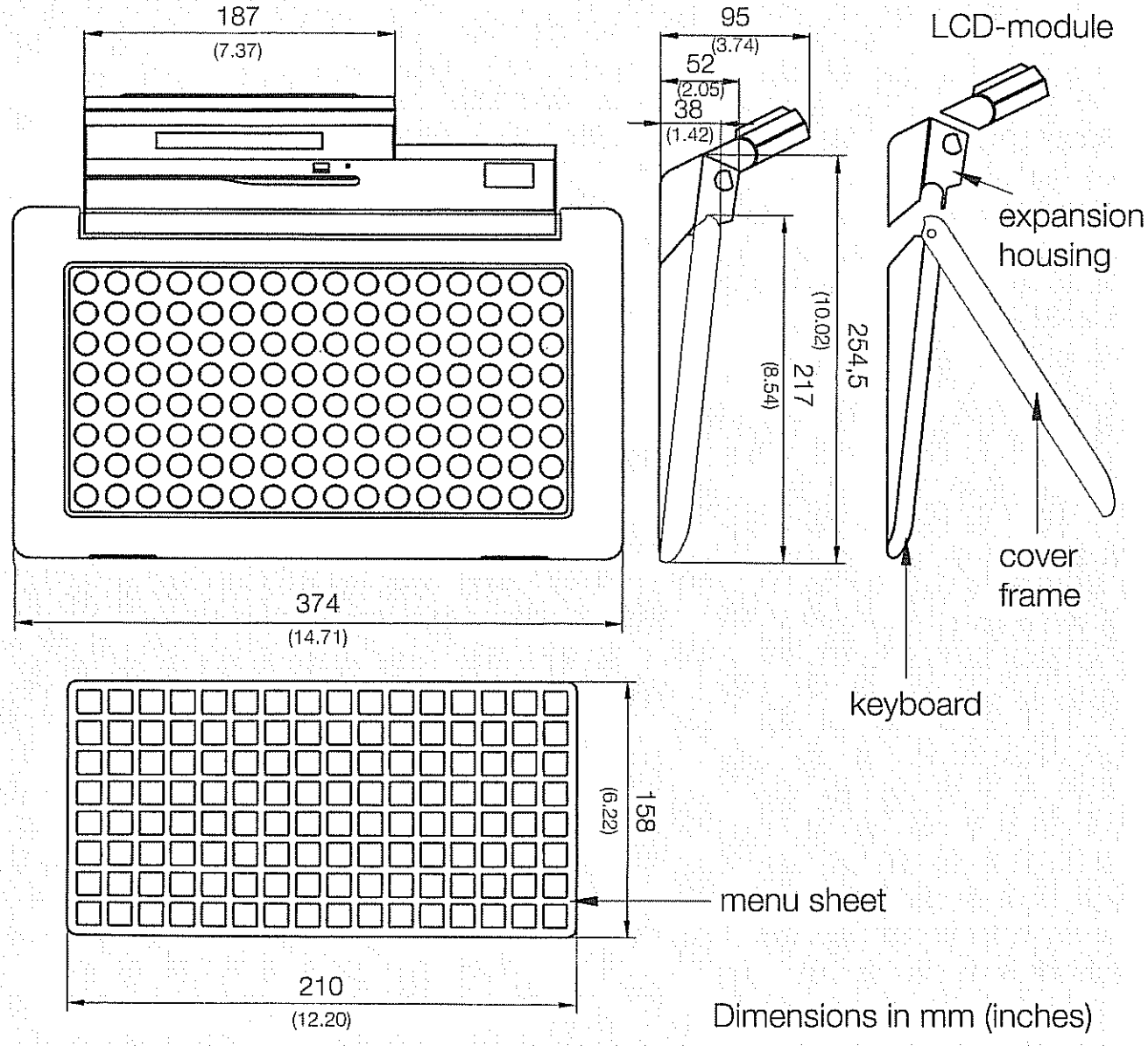
Actuation force: 2.5 N
Impact stability: 10 N, 1 min.

Lifetime of the keys: minimum 5 x 10^6 cycles per key
Key drop: 0.8 mm
Key spacing: 19 mm

B) Housing

Colour:	grey-white, similar to RAL 9002
Dimensions:	
Menu sheet:	310 x 158 mm (l x w)
MR 128 W/X	374 x 217 x 38 mm (l x w x h)
MR 128 W/X with additional module:	374 x 254,5 x 52 mm (l x w x h)
MR 128 W/X with LCD (2 lines):	374 x 285 x 95 mm (l x w x h)
MR 128 W/X with LCD (4 lines):	374 x 296 x 114 mm (l x w x h)

Dimensional Drawings:



6.5 Materials and surfaces

• Housing	ABS
• Switching membrane	Polyester foil
• Base plate	Steel, zinc plated
• Spring elements	Hostaform C
• Ventilation diaphragm	Platilion
• Key panel sheet	Platilion
• Contact mat	Silicone rubber

6.6 Type of protection

IP 54 in accordance with DIN 40050/IEC 529
Applies only to the key panel from the direction of actuation

7 Maintenance and care

The keyboard should only be cleaned with a soft cloth. If necessary you can dampen the cloth slightly and use a mild cleaning agent. **Switch your computer off first.** Make sure that no liquid enters the keyboard during cleaning.

If an additional protective foil is located in the cover of your keyboard, this front foil (incl. adhesive frame) can be reordered under the **Preh part number 12699-011/0000**.

8 Troubleshooting

8.1 General information

Attention: The Preh Commander MR 128 W/X does not contain any electronic components that can be replaced or serviced by the user. You should therefore not try to carry out repairs yourself. In this case you will also lose any guarantee claims for this product.

8.2 Fault location table

Many faults can be traced to loose or incorrectly connected cables. You should therefore first make sure that all cables have been properly connected, and you should also check any programming that you have carried out. In this connection read the relevant sections (see 2.2.2 or 4) of these operating instructions once more.

Fault	Possible cause	Remedy
Computer indicates „keyboard error" during start-up	- cable not correctly plugged in - incorrect keyboard interface initialised	- check cable connections - re-initialise keyboard interface (see 3.2.3)
Preh keyboard does not work, although the daisy-chained keyboard works	No keyboard assignment stored in the internal keyboard EEPROM	Generate keyboard assignment table and save in keyboard (see 4), or else save existing table
Preh keyboard beeps at every key position, without displaying any characters	A fault has occured in the transmission of the keyboard assignment table, or the contents of the EEPROM have been modified	Re-initialise keyboard interface (see 3.2.3) and reload keyboard assignment table into the Preh Commander MR 128 W/X (see 4)
A keyboard buffer overflow occurs during the transmission of a string, causing loss of characters or functions	Output speed of Preh Commander too high	Enable the „Slow output" attribute with the Preh Programmer (you will find notes on this on the Preh Programmer disk in the file „PP4100.TXT")
Modules do not function, or do not function correctly	Module is disabled	Enable the module in question with the Preh Programmer (see 5.2)
The message „writing not OK" appears during the transmission of the keyboard assignment table	Older version of the Preh Programmer	- Use new version of the Preh Programmer - Transmit the keyboard assignment table to the keyboard once more
The message „writing not possible" appears during the transmission of the keyboard assignment table	Preh Programmer runs in the DOS box of Windows	- Use new version of the Preh Programmer - Close Windows and start the Preh Programmer at the DOS level

8.3 Supplementary help

Should you have any problems handling or programming the Preh Commander MR 128 W/X, please contact your local dealer.

You can download the **latest Preh Programmer** version from our INTERNET homepage **„http://www.preh.com“** at any time.

You can reach our Keyboard Service under

Phone: +49-9771-92-208
Fax: +49-9771-92-152
e-mail: support@preh.com

9 Further notes

All Preh products are subject to a continuous process of improvement. For this reason we reserve the right to carry out technical alterations.

We should like to point out that improper handling, storage, influencing and/or modification can lead to faults and damage in use.

If our products are modified in any way by the user, we can accept no guarantee or liability, unless you have explicit written approval from us for your particular application.

In particular, this applies to incorrectly carried out repairs and service work.

No claims for damages against Preh-Werke GmbH & Co. KG - for whatever legal reason - can be accepted unless the damage is caused intentionally or by gross negligence. The above restriction does not apply to claims for damages based on the Product Liability Act.

These operating instructions apply solely to the Preh Commander MR 128 W/X supplied with these instructions.

10 Declaration of conformity

This is to certify that declarations of conformity are available for all versions of the Preh Commander MR 128 W/X.

You can of course request these declarations from us, stating the exact type designation (see type plate on the underside of the unit).

Preh-Werke GmbH & Co. KG
An der Stadthalle
D-97616 Bad Neustadt an der Saale
Fax: +49-9771-92-105