PREH-MWX.EXE (PrehProgrammer) Version 4.1.00

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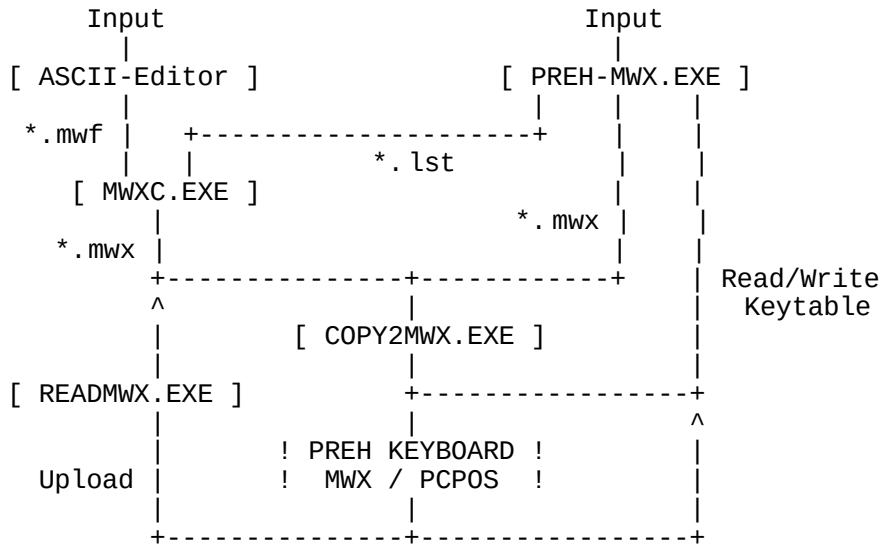
(PP4100e-11/19/96-mk Information may be subject to change without notice)

CONTENTS

1. General

Key assignments for programmable Preh keyboards can be constructed by means of the Prehprogrammer. The key assignments can be loaded to and from the keyboard and stored as MWX data files. In this way it is possible to easily prepare and duplicate keyboard assignments. In a similar manner, the MWX data file can be loaded into the keyboard via COPY2WX.EXE. The LST file generated by the PrehProgrammer (see also 2.6), which enables a simple checkout, can also be transferred to a MWX file by MWXC.EXE. The PrehProgrammer can be run on an MS-DOS processor (80286 or higher) with 640k RAM and a colour monitor (CGA, EGA or VGA).A mouse is recommended.



Overview of Available Tools and Data File Formats

The program is started with:

PREH-MWX [/H|?] [/nn] [/E] [/A] [/P] [/COMx: 9600,0,8,1] [Filename]

/? or /H reveals the callup syntax of the command line.

The preset keyboard language can be selected by means of the parameter<nn>. By using the indicated language code (US, GR, FR, UK, SG, SF, IT or SP) the PrehProgrammer can translate the inputted key assignment into scancode appropriate for the keyboard driver (KEYB xx).

/E starts the PrehProgrammer in the Expert Mode. In this mode, all the functions of the PrehProgrammer are available; however the programming does require that the user has a basic knowledge of the function modes of a keyboard system.

The parameter /A switches to the ASCII Mode. In this mode the key assignment is optimised with respect to storage area, although output takes a little longer.

/P switches on Edit-Layout for the PCPOS family.

By means of the parameter /COMx, the corresponding COM port of the PC is used for communication with the Preh- keyboard. The keyboard must also be simultaneously set to RS232. The default levels for the keyboard are 9600 baud, odd parity, 8 data bits and 1 stop bit. This setting can be selected by pressing the key-combination A01+D01 during startup.

Specifying <Filename>, causes the MWX data file to be loaded into the PrehProgrammer on startup.

Keyboard and mouse operations follow the guidelines of IBM's SAA (Systems Application Architecture) standards, which simplifies usage.

2. PrehProgrammer Menus

** causes the indicated menu items to appear only in the Expert Mode.

After startup, the Main Menu with the following selections appears:

Info(-)	Info
File	Load *.MWX, Save *.MWX, Read (KB), Write (KB), and Exit.
Edit	Modification of assignment, hotkeys and interface.
Default	Default Settings (levels and attributes) for new keys.
Config	Operational Settings of the PrehProgrammer.
List	Output of the keyboard assignments as files.
Utilities	Auxiliary Functions
Help	Calls up the Help System.

These menu items are selected from the keyboard by pressing the ALT-key together with the designated letter key. With the mouse you simply click on the corresponding word. A Pulldown Menu then appears. You can then select more menu items.

2.1 Info-Submenu

Info	Displays the version of the PrehProgrammer, the PP number and the Checksum(ID) of the connected Preh keyboard. The Checksum (ID) denotes the firmware of the keyboard being used.
Exit	Closes the program and returns to DOS.
Help	Online Help
Cancel	Breaks off the PrehProgrammer.

2.2 File Submenu

In this Submenu you will find the following functions:

Open	Loads an MWX Data File
New	Deletes the keytable currently in RAM.
Save	Saves the keytable as an MWX Data File.
Save as	Saves a keytable with a new name.
Read Keytable	Reads the keytable database from the Preh keyboard.
Write Keytable	Prints the keytable database to the Preh keyboard.
Use Interface	Selects the Read/Write interface.
Exit	Quits the program and returns to DOS.

The port to which the Preh keyboard, to be programmed, is connected is selected by means of USE INTERFACE (theoretically, three keyboards can be programmed "simultaneously" without changing connections (AT, COM1 and COM2)). If a COM port is selected, the RS232 parameter can be specified after confirming the port via "Return". The basic setting is 9600 baud, odd parity, 8 data bits, 1 stop bit.

2.3 Edit Submenu

This submenu provides functions for the setup of the assignment memory of a Preh keyboard. Here you will find the following menu selections:

Keys	Input from key assignments (Section 3.1).
Modules	Input from Module Parameters/Overlays (Section 3.2).
Hotkey 0	Definition of hotkeys for online string programming.
Hotkey 1	Definition of hotkeys for online single key programming.
Interface	Settings for the active ports. With this, the keyboard interface of the new assignment is specified. It is only active AFTER download.
Sound	Settings for sound parameters. Volume and duration for keyclick and error beeps (fat finger alarm) can be specified over the ranges of 0%...100% and 20ms...5100ms.
Repeat/Delay	Settings for repeat and delay rates. If the Auto-repeat attribute is activated for a key, then after depressing that key for the delay time, MakeCodes repeats this key at <Rate> characters per second.
Slow Output Speed	Sets the output rate. Upon activation of the Slow Output attribute, the output rate (i.e. buffer delay in the processor) is selected by means of the Speed parameter. The default setting is the normal output rate. To speed up the output rate, MakeCodes can only be activated to the extent that the system will accept this output mode (i.e. MS-DOS).

2.4 Default Submenu

The default of the key levels and the attributes of new assignment strings can be set here (to lessen the amount of work in the Input screen).

Here you will find the following menu items for level selection:

Normal Level	Defines the normal level of a key.
Shift Level	Defines the shift level of a key.
Ctrl Level	Defines the control level of a key.
Alt Level	Defines the Alt level of a key.
Special Level	Selected level is not changed.
Standard Key	Adjusts standard keys.

You can set the following attributes:

Keyclick	Turns Key Click on or off.
Repeat	Switches Autorepeat on or off.
Protect	Enables or disables online programming.
Slow Outp	Slows character output (necessary due to buffer delays!)
MakeBreak	Key works like a standard key.
Restore	Keyboard status can always be restored or not.

2.5 Configuration Submenu

In this submenu you can change the configuration of the PrehProgrammer and the programmable Preh keyboard.

Input Mode Select the input mode for the key assignment.

You may choose between:

String	Input as text string and automatic conversion of Scancodes.
Scancode	Input of Scancodes in the HEX format.
ASCII	Input of ASCII strings without conversion into Scancodes.

In the future, ASCII will not be supported.

In order to simplify the construction of the key assignments, you can choose between an EASY Mode and an EXPERT Mode. In the EASY Mode, simplifications and adjustments are carried out by the progam itself. In the EXPERT Mode, these system limitations do not apply and you maintain control over all possible settings. However, you yourself must then provide all the significant combinations of the conditions and attribute flags with which the keyboard generates the desired characters.

Expert	Activates Expert Mode, otherwise Easy Mode remains active.
Matrix Size	Defines kind of keyboard. The type of keyboard can also be stored in the key assignment and the PrehProgrammer set up for keyboard programming of the corresponding layout.
KEYB Language	Defines keyboard language. A correct translation of text input in the String Mode is only possible with the proper setting for keyboard language. The following languages are supported via KEYB xx: US, GR, FR, UK, SG, SF, IT and SP. In addition, you can opt for the utilised keyboard drivers having a CAPS Lock or a SHIFTLOCK function. CAPSLOCK - Keyboard has a CAPSLOCK function. SHIFTLOCK - Keyboard has a SHIFTLOCK function.
Save Config	Saves configuration in Configuration Data File format (*.CFG). If such a data file resides in the memory of the PrehProgrammer, then it can be installed on startup.

2.6 List Submenu

With this submenu you can output the key assignment list to the monitor, the printer or a data file.

Display	After selecting a command line by means of the cursor keys and RETURN (or the mouse) you can edit the assignment text and/or key characteristics so they are equivalent to the MWX Compiler Syntax. The listing can be terminated by means of ESC.
Printer	The output goes to the printer connected to LPT1.
File	The output goes to a data file with the extension '.LST'. This data file can then also be further processed by means of the MWX Compiler.

2.7 Utilities Submenu

Various auxiliary functions for configuring the key assignment are available here.

Add	The basic assignments for PCPOS and PCPOS JUNIOR are loaded in addition to the current keyboard assignment.
Protect	Sets the Protect Attribute for all keys.
Unprotect	Removes the Protect Attribute for all keys.
Copy Key	Copies all levels of a single key assignment to a new key position.
Swap Keys	Interchanges two key assignments (all levels).

2.8 Help Submenu

Index	Help arranged according to topics.
Overview	A brief introduction.

Subject-related help can be found within each submenu by pressing the F1 key.

3. Setup for Processing

After you have started the PrehProgrammer without parameters, you can load a stored MWX file with FILE\OPEN, load a keytable stored in the connected Preh keyboard with FILE\READ KEYTABLE, or prepare a completely new overlay. If you want to construct a new overlay, you must first specify the country code with CONFIGURATION\KEYB LANGUAGE and the keyboard type with CONFIGURATION\MATRIX SIZE. Even if a Preh keyboard with an Alpha key-field has been newly programmed, you must still load the standard assignment with UTILITIES\ADD DEFAULT KEY ASSIGNMENT.

3.1 Inputing Key assignments

The selection screen is reached via EDIT\KEYS. All previously loaded key positions appear bright. The key positions which depend upon the keyboard type defined in CONFIGURATION\MATRIX SIZE are displayed in the lower area. In the upper region, the assignment for the Header and Terminator of the module can be selected in the same way as for the normal key assignments. Header and Terminator are used immediately before and after a data string of the corresponding hardware and can be utilised, for example, to identify the pertinent data stream. By selecting a keyposition you reach the EDIT KEY screen. Each new key assignment must be authenticated with <Return>. If you want to quit the EDIT KEY screen without making any changes, press <ESC>.

3.1.1 Assignment

In the Assignment command line of the EDIT KEY screen you can input the key assignment as a string or as Scancodes (set in CONFIGURATION\INPUT MODE). After confirmation that the input is error-free, it is marked "complete". In case of a mistake, an alarm sounds and the cursor is positioned at the incorrect location. When inputting as a string, all keys which cannot be represented by an ASCII code must be replaced by their key-names (in {}), i.e. {F1} for the F1 key, {Ctrl + Up} for the Ctrl function of the Up Arrow key. Please select the key-designations Scancode Macros) from the table on the following page:

Examples: {F1}, {Ctrl+F5}, {up}, {Ctrl+A}, {Delay}, {Alt+X}, ...

Code	Description
F1 .. F12	Function keys F1 .. F12
FS1 .. FS12	SHIFT + Function keys F1 .. F12
FC1 .. FC12	CTRL+ Function keys F1 .. F12
FA1 .. FA12	ALT + Function keys F1 .. F12
N0 .. N9, N.	Numerical block positions
#0 .. #9, #.	Numerical block codes
SPACE	Spacing (only used at the end of a line)
BACKSPACE	Backspace key (BS abbreviation allowed)
PAUSE	Pause key
BREAK	Break key (= CTRL + Pause)
EMPTY	Empty string
NO_DATA	Suppressed data string (only for equipment IDs)
INS	INS key
DEL	DEL key
PGUP	PgUp key
PGDN	PgDn key
HOME	Home key
END	End key
SYS	Switches on SysRq function
SYSBREAK	Switches off SysRq function
NUMLOCK	NumLock key
SCROLL-LOCK	Scroll-Lock key
PRTSC	PrtSc key
ESC	ESC key
TAB	Tab key
LEFT	Moves cursor to the left
RIGHT	Moves cursor to the right
UP	Moves cursor up
DOWN	Moves cursor down
RETURN	RETURN key
ENTER	ENTER key
PLUS	Plus key in numeric keypad
MINUS	Minus key in numeric keypad
STAR	*-key in numeric keypad
DIV	/-key in numeric keypad
DELAY	0.5 sec output delay
LED_ON	Key LED on (only M W/X bel)
LED_OFF	Key LED off (only M W/X bel)
RESET	RESET function
NUL	Null byte
SHIFT	Shift key
CTRL	Ctrl key
ALT	Alt key
ALTxxx	Alt sequence with the code xxx (e.g. ALT27=ESC)
ALTGR	AltGr key
SHIFT+..	Shift function of ..
CTRL+..	Ctrl function of ..
ALT+..	Alt function of ..
ALTGR+	AltGr function of ..
LWIN+..	Left WIN95 function of ..
RWIN+..	LRight WIN95 function of ..
APP	WIN95 application key

3.1.2 Key Position

The key position field represents the current key position as a 3-place code. The first place indicates the row by a letter, as shown below. The remaining digits specify the column, from left to right.

```
H01  H02  H03  H04  H05  H06  H07  H08  H09  H10  H11  H12  H13  H14  H15  H16
G01  G02  G03  G04  G05  G06  G07  G08  G09  G10  G11  G12  G13  G14  G15  G16
F01  F02  F03  F04  F05  F06  F07  F08  F09  F10  F11  F12  F13  F14  F15  F16
E01  E02  E03  E04  E05  E06  E07  E08  E09  E10  E11  E12  E13  E14  E15  E16
D01  D02  D03  D04  D05  D06  D07  D08  D09  D10  D11  D12  D13  D14  D15  D16
C01  C02  C03  C04  C05  C06  C07  C08  C09  C10  C11  C12  C13  C14  C15  C16
B01  B02  B03  B04  B05  B06  B07  B08  B09  B10  B11  B12  B13  B14  B15  B16
A01  A02  A03  A04  A05  A06  A07  A08  A09  A10  A11  A12  A13  A14  A15  A16
                                  |
```

Assignment of key IDs for M 84/128 W/X

```
G01  G02  G03  G04  G05  G06  G07  G08  G09  G10  G11  G12  G13  G14  G15  G16  G17
F01  F02  F03  F04  F05  F06  F07  F08  F09  F10  F11  F12  F13  F14  F15  F16  F17
E01  E02  E03  E04  E05  E06  E07  E08  E09  E10  E11  E12  E13  E14  E15  E16  E17
D01  D02  D03  D04  D05  D06  D07  D08  D09  D10  D11  D12  D13  D14  D15  D16  D17
C01  C02  C03  C04  C05  C06  C07  C08  C09  C10  C11  C12  C13  C14  C15  C16  C17
B01  B02  B03  B04  B05  B06  B07  B08  B09  B10  B11  B12  B13  B14  B15  B16  B17
A01  A02  A03  A04  A05  A06  A07  A08  A09  A10  A11  A12  A13  A14  A15  A16  A17
```

Assignment of key IDs for M 119 W/X

```
F: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15  16 17 18.19 20 21.22 23

E: 01 02 03 04 05 06 07 08 09 10 11 12 13[14 15] 16 17 18.19 20 21.22 23
D:[01] 02 03 04 05 06 07 08 09 10 11 12 13 [ 14] 15 16 17.18 19 20.21 22
C:[01 ] 02 03 04 05 06 07 08 09 10 11 12 13 [14] 15 16 17.18 19 20.21 22
B:[01] 02 03 04 05 06 07 08 09 10 11 12 [13  14] 15 16 17.18 19 20.21 22
A:[01 ]  [02 ]  [      03       ]  [ 04 ] [ 05 ] 06 07 08.09 10 11.12 13
```

Assignment of key IDs for PC POS

```
G:  01 02 03 04 05 06 07 08 09 10 11 12 13 14 15  16
F:  01 02 03 04 05 06 07 08 09 10 11 12 13 14 15  16
E:  01 02 03 04 05 06 07 08 09 10 11 12 13[14 15] 16
D: [01] 02 03 04 05 06 07 08 09 10 11 12 13 [ 14] 15
C: [01 ] 02 03 04 05 06 07 08 09 10 11 12 13 [14] 15
B: [01] 02 03 04 05 06 07 08 09 10 11 12 [13  14] 15
A: [01 ]  [02 ]  [      03       ]  [ 04 ] [ 05 ] 06
```

Assignment of key IDs for PC POS JUNIOR

```
H01 H02 H03 H04 H05 H06 H07 H08 H09 H10 H11 H12 H13 H14 H15 H16
G01 G02 G03 G04 G05 G06 G07 G08 G09 G10 G11 G12 G13 G14 G15 G16
F01 F02 F03 F04 F05 F06 F07 F08 F09 F10 F11 F12 F13 F14 F15 F16
E01 E02 E03 E04 E05 E06 E07 E08 E09 E10 E11 E12 E13 E14 E15 E16
D01 D02 D03 D04 D05 D06 D07 D08 D09 D10 D11 D12 D13 D14 D15 D16
C01 C02 C03 C04 C05 C06 C07 C08 C09 C10 C11 C12 C13 C14 C15 C16
B01 B02 B03 B04 B05 B06 B07 B08 B09 B10 B11 B12 B13 B14 B15 B16
A01 A02 A03 A04 A05 A06 A07 A08 A09 A10 A11 A12 A13 A14 A15 A16
```

Assignment of key IDs for MC 80/128

In order to select the key position to be edited, you can either change this field accordingly or exit the input screen via <ESC> and choose a new position from the selection screen. Headers and Terminators for particular hardware modules can be defined via the following Codes, just as with all the other keys.

M1H	Header string for MSR Track 1
M1T	Terminator string for MSR Track 1
M2H	Header string for MSR Track 2
M2T	Terminator string for MSR Track 2
M3H	Header string for MSR Track 3
M3T	Terminator string for MSR Track 3
BCH	Header string for barcode reader
BCT	Terminator string for barcode reader
FIH	Header string for inserting function card and -lock
FIT	Terminator string for inserting function card and -lock
FRH	Header string for removing function card and -lock
FRT	Terminator string for removing function card and -lock
KLH	Header string for keylock
KLT	Terminator string for keylock

3.1.3 Number of Levels

No key has been defined yet for the key position "new level". "level N of M" will appear if M levels for this key-position are already defined. With <PgDn> and <PgUp>, a level to be edited can be chosen, and a new level can be defined with <Ctrl+PgDn>.

3.1.4 Key Attributes

Various functions of the keyboard assignment can be assigned by means of these attributes.

Keyclick	String output with acoustic key click. A beep, whose volume and duration can be regulated, is produced when the key is pressed.
Autorepeat	String output with Autorepeat Function. If the key is held down, the keyboard repeats its MakeCode with the parameters selected in EDIT\REPEAT/DELAY.
Protected	String cannot be changed by means of ONLINE programming.
Slow Output	Slows character output. The character output of strings and hardware data (Slow Output defined in the Header) are delayed according to the setting stipulated in EDIT\SLOWOUTPUTSPEED.
MakeBreak	Key sends MakeCodes when depressed and BreakCodes when released. This attribute must be specified if a <Shift> key, <Ctrl> key, etc. are to be defined.
Restore	Levels are restored after sending. Attribute for Lock functions (i.e. Ctrl Lock). If the level must be changed during a string output, then the keyboard restores the levels as they were before the String output.

3.1.5 Level Selection

Every change in the "level selection" sector opens up a new assignment level as long as it has not yet been defined.

In the Easy Mode, the levels for Normal, Shift, Ctrl and Alt can be defined. If, for example, a string is defined in the Ctrl level, this overlay is only transmitted if a Ctrl key is pressed together with the corresponding programmed key. The Level Standard generates a key-assignment which behaves identically to a Standard key on a MF2 keyboard.

The individual levels can be combined in the Expert Mode. Here, the subordinate conditions of active, inactive and ignore can be chosen for each level.

The Keyled level is only supported by the M84WX-bel. The key level is specified if the overlay is to be transmitted upon depressing and releasing. Together with the MakeBreak and Auto Repeat attributes and without the restore attribute, a Standard key can be defined in this way.

3.2 Module Settings

By means of EDIT\MODULES, you reach the EDIT MODULES screen, in which you can make all module-specific settings. Besides the assignments for Header and Terminator, the parameters for specific equipment can also be defined here. If the attribute SlowOutput is defined in the Header of a Module, then this also applies to the data of the module. In this way a possible overflow of the system buffer due to large quantities of data can be avoided.

3.2.1 Autoinput

The data for the optional equipment of the keyboard -- magnetic stripe reader (MSR), barcode reader (BCR), keylock (KL), functionkey reader (FSR) and function card (FCR) reader is standard, with a particular action or change sent to the corresponding module (Autoinput). These functions can be turned off by means of the switch.

3.2.2 Barcode

RS232 equipment (especially the Barcode Reader) can be connected to the keyboard by means of the BCR/RS232 module. In this way, it is possible to transfer their data to the host via the keyboard interface. The EDIT key in the Barcode domain opens the BARCODE INTERFACE SETUP window in which this interface is initialised and defines the 'Initstring', which is sent to this interface after each Power On Reset. The following partial strings have special significance in the initialisation string:

^^ -- The character '^'
^c -- Control Code (Bsp: ^a=\x01='.')

This function is not available with the standard BCR module.

3.2.3 Ext. Keyboard

The initialisation of the keyboard connected to the optional connector can be disabled by means of this switch. This initialisation normally takes place in the same way in which the host does it during the Power On Reset.

3.2.4 KVK Reader (German Health Card)

The desired output format can be selected in the KVK Reader area:

PC-CHIP-KVK0/keyboard version (90313-004/0000)

BA0	ASCII output via connection of the KVK
BA1	ASN.1 output after sending the command sequence EFh 26h (default)
BA2	ASCII output via connection of the KVK (functions faster than BA0, although not with all systems)

PC-CHIP KVK2/RS232 version (90313-004/0002)

Festformat	ASCII output after KBV-spec.
ASN.1	ASN.1 output after KBV-spec. (default)

3.2.5 Magnetic Card Reader

The magnetic card reader can read up to three tracks per the following according to the following standards:

Standard	ISO 7811	ISO 7811	ISO 7811	JISX6302
Track	1	2	3	JISII
Max. No. of characters	79	40	107	72
Track density/bpi	210	75	210	210
Word length without parity	6	4	4	7
Start sentinel (ASCII)	05h('%')	0Bh(';')	0Bh(';')	7Fh
End sentinel (ASCII)	1Fh('?')	0Fh('?')	0Fh('?')	7Fh

The output takes place across the keyboard interface with Scancodes, i.e. the data is output encoded in the same way as the keyboard input. A prerequisite of this is that the country setting of the keyboard driver (i.e. KEYB GR) agrees with the language setting of the keyboard (i.e. GR). The magnetic card reader channels are output in the order of their channel number. If a JISII channel is available, then this is output instead of the lowest erroneous ISO channel.

A string which outputs the channel data ahead of the Header and after the Terminator can be defined for each channel. The speed formatting of the Header is transferred with the channel data, so an overflow of the system buffer at high data rates can be avoided. The formatting of the Header and Terminator is the same as that of the key definitions. The basic settings for the Header and Terminator are empty strings (only channel strings are output).

The immediate output of the channel data after the magnetic card has been read can be prevented by disabling the Auto input Option. The data then remain stored until they are recalled by either of the command sequences EFh 1Ah or Efh 18h. Three command sequences which can be sent to the keyboard are associated with this function.

EFh 18h	MSR Auto input on
EFh 19h	MSR Auto input off
EFh 1Ah	Read MSR data

The basic setting stored in the keyboard assignment is Auto input on.

The corresponding channels of the magnetic card reader can be locked or released by means of the Track1/2/3 keys. The Header and Terminator of unavailable MSR channels are also suppressed in this way.

Each magnetic card channel has a start character (Start sentinel) and an end indicator (End sentinel) with which the data are bracketed. These characters are output in the basic setting. In order to enable the simple handling of numerical MSR data, the Sentinels can be suppressed via the Sentinels key.

The checksum (XOR) encoded on the magnetic card is normally not transferred. The LRC (Longitudinal Redundancy Check) is also transferred with the established checksum, and attached to the end with the same ASCII convertibility as all other characters. Because of ASCII convertibility, with the checksum only those locations are valid which have been defined in terms of word-length. The checksum is always the same as the one coded on the card. If Start sentinel and End sentinel are disabled, these must be linked with the transferred checksum according to the standard being used, in order for the checksum to support the current data string.

With BadReadString a string can be defined, which is sent as a datastring upon a faulty reading (corrupted card, data file not according to standard, etc.). In the string, the token "/#" is replaced by the error number:

0	No Start sentinel recognised
1	Parity error
2	Checksum error

The error code is sent with the Start- and End sentinels due to the preset Sentinel option.

Because of the many different kinds of modules, the parameters Checksum and BadReadString may not be supported by all keyboard types for certain magnetic card reader modules!

The output format is structured as follows:

Header1 Startsentinel1 Data1 Endsentinel1 Checksum1 Terminator1
Header2 Startsentinel2 Data2 Endsentinel2 Checksum2 Terminator2
Header3 Startsentinel3 Data3 Endsentinel3 Checksum3 Terminator3

Example:

Keyboard assignment:

M1H: "msr1" M1T: "ende1{Return}"
M3H: "msr3" M3T: "ende3{Return}

In the MSR sector only Track2 is disabled.

Output:

msr1%DATA1Qende1
msr3;123?4ende3

4. Online Programming

Besides programming a Preh keyboard with the PrehProgrammer or COPY2WX.EXE, you can also program a keyboard by means of an MF2 attached to the daisy chain. The programming can in two Modes. The hotkeys on the MF2 keyboard can be defined in the menus EDIT\HOTKEY0 or DIT\HOTKEY1. The basic setting for HOTKEY0 is the SYS key (Alt+PrtSc) and for HOTKEY 1 the Ctrl+SYS key-combination (Ctrl+Alt+PrtSc).

String Online Programming:

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

1) Press HOTKEY0 (MF2 keyboard)
2) Press the key to be programmed (Preh keyboard)
3) Input the string (MF2 keyboard)
4) Press HOTKEY0 to quit (MF2 keyboard)

Single Key Online Programming:

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

1) Press HOTKEY0 (MF2 keyboard)
2) Press the key to be programmed (Preh keyboard)
3) Press standard key (MF2] keyboard

Online Programming works like a recorder function, i.e. all inputs are sent to the processor as well as being stored in the key assignment.

5. Examples

The following examples demonstrate the procedure for making simple modifications. Play around with the examples in order to familiarise yourself with the PrehProgrammer.

Programming key position F19 of a PCPOS as a Sys key. (PCPOS is connected to the processor.)

1) Start the PrehProgrammer with the command PREH-MWX.
2) Select keyboard type PCPOS with CONFIGURATION\MATRIX Size.
3) Select the language with CONFIGURATION\LANGUAGE.
4) Save the configuration with CONFIGURATION\SAVE. (2 to 4 are only necessary for a new configuration)
5) Load current keytable with FILE\READ Keytable.
6) Use EDIT\EDIT KEYS to select key F19.
7) Input "{SYS}" key assignment.
8) Select Standardkey levels.
9) Turn off all attributes.
10) Confirm input with <Return>.
11) Save new keytable as an MWX data file with FILE\SAVE.
12) Load the new keytable into PCPOS with FILE\WRITE KEYTABLE.
13) Quit PrehProgrammer with FILE\EXIT.

New key assignment and programming of the key position A01 with the string "echo Hello {Return}" for normal levels and "echo HELLO {Return}" for shift levels. (M84WX is connected to the processor.)

1) Start the PrehProgrammer with the command PREH-MWX.
2) Select keyboard type M84WX with CONFIGURATION\Matrix Size.
3) Select language with CONFIGURATION\LANGUAGE.
4) Save the configuration with CONFIGURATION\SAVE. (2 to 4 only necessary for a new configuration)
5) Select key A01 with EDIT\EDIT KEYS.
6) Input assignment "echo Hello{Return}".
7) Select normal levels.
8) Turn off all attributes.
9) Confirm input with <Return>.
6) Input assignment "echo HELLO{Return}".
7) Select shift levels.
8) Select Keyclick attribute.
9) Confirm input with <Return>.
10) Save new keytable as an MWX data file with FILE\SAVE.
11) Load new keytable into PCPOS with FILE\WRITE Keytable.
12) Quit PrehProgrammer with FILE\EXIT.

6. Glossary

Breakcode	Scancode of a key which is sent upon its release. The MSB of Makecodes is set here in Scanset1 or in Scanset2 an F0h is sent ahead of the Makecode.
Fat Finger Alarm	Error Beep. Triggered if the keyboard cannot distinguish the correct sequence of two keystrokes (two keys pressed simultaneously).
Error Beep	Beep if a key-combination cannot be correctly transmitted (fat finger alarm, phantom key alarm). Volume and duration are globally regulated.
Header	String output preceding the data string from an equipment module. The string is defined in the same way as a key-assignment. If the attribute Slow Output has been activated, this function is also operative for the data string.
Keyclick	(attribute) A beep which sounds when a key is pressed. Volume and duration are globally regulated.
KVK	Health insurance card.
Makecode	Scancode of a key which is sent when it is pressed.
MSR	Magnetic Strip Reader
Phantom	Error beep. Is triggered if in an unfavourable combination Key Alarm three keys are being pressed simultaneously.
Scanset1	Keycode table which can be used for Preh keyboards as well as in PC systems. The individual Scancodes of the key positions represented thereby are independent of the keyboard language. Scanset1 is used during transfers to the Host System with the XT keyboard interface.
Scanset2	Keycode table which is used during transfers to the host system with the AT keyboard interface. The keyboard codes are used in the AT system as Scanset1 codes sent on to PC systems. The individual Scancodes represented thereby are independent of the keyboard language of the key position.
Sentinels	Start and end indicators on the magnetic stripe (';', '%' and '?') whose output can be suppressed.
String	A chain of characters. In special cases, only one character.
Terminator	A string which is output following a data string from an equipment module. The string is defined in the same was as a key assignment.

7. NEW FEATURES

Starting with version 4.1.00 all functions are usable under windows (DOS-Box). This only works with keyboard with the Manufacture Date Code 5480 or higher.

This version of the PrehProgrammer also supports the MC family.

The key assignment Syntax is expanded:

- Left WIN key {LWIN}, right WIN key {RWIN} and application key {APP} are usable like the SHIFT, Ctrl or Alt key. E. g. {Lwin+E} will start the Explorer.

- Chained key combinations will be supported (e.g.{Ctrl+Alt+F12}).

- hex coded scancodes can be used in brackets with the syntax \xNN (e.g. {\x1D}). The change to the scan code mode is not necessary.

- COPY2MWX.EXE is also usable under windows.

- The Menu EDIT-->Modules supports now additional modules and functions e.g. RS232 barcode interface, LRC and BadReadString in the new MSR.

- The matrix size will be saved in the keytable. When the PrehProgrammer starts up the matrix size of the keyboard will be detected.

Attention!

Some features are only supported on recently manufactured keyboards. Older keyboards will ignore the setting of this feature and will work in the conventional manner.