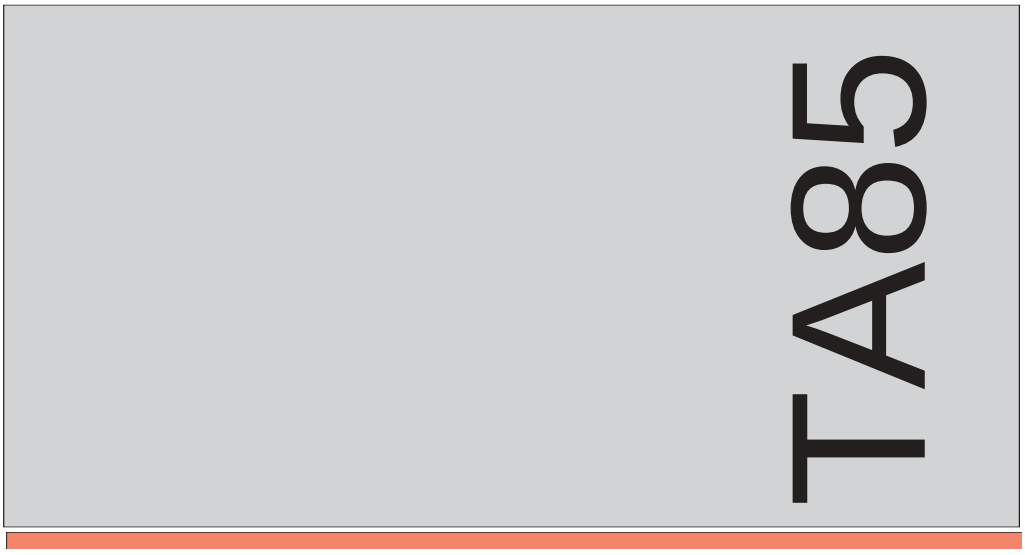
WINCOR
NIXDORF



TA85/TA85P

POS Keyboard

User Manual

TA85/TA85P

POS Keyboard

User Manual

Edition September 2002

Contents

Manufacturer's Declaration and Approval 1
General Authorization 1
FCC-Class A Declaration 1
User Information 2
Safety Instructions 2
Cleaning Instructions 2
Scope of supply 3

Mounting keys 5
Exchanging the Keys 5
Inserting Key Labels 6
Inserting Key Caps 7

The TA85/TA85P keyboard 8
General 8
Keypad 9
Key switch 9
LEDs 10
Swipecard reader (SCR) 10
Using the Swipecard reader 11
Cleaning Instructions 11
Connection method 11
Releasing the Cable Connection 12
Self-test 12
Mounting the BA69 13
Mounting the BA63/BA66 14
Connecting a 2nd Keyboard to theTA85P 16

Programmable Keyboard TA85P 17
Files on the Diskette 17
Mode 18
Main functions 19
Keyboard Connection 19
Help 20

Creating Tables 20
Sending and Receiving Tables 22
Useful Hints 22

Appendix.....24
Technical data 24
Keyboard layout.....25
Keyboard Codes (Default).....27

Manufacturer’s Declaration and Approval

General Authorization

CE

This device fulfills the requirements of the EEC standard 89/336/EWG “Electromagnetic Compatibility”.

Therefore, you will find the CE mark on the device or packaging.

FCC-Class A Declaration

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 requested to correct the interference at his own expense.

Le présent appareil numérique n’émet pas de bruits radioélectriques dépassant les limites applicable aux appareils numériques de la “Class A” prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

User Information

Wincor Nixdorf International GmbH (WN) does not accept responsibility for radio and TV interference and faults that are caused by unauthorized changes that have been made to the devices. Furthermore, cables or other devices that have not been approved by WN may not be connected to the device. The user is responsible for any faults and interference that are caused as a result.

Repair work on the devices should only be carried out by authorized and specially trained personnel. Improper repairs will lead to the loss of any guarantee and liability claims.

Safety Instructions

Note the following safety information:

- Lay all cables and supply lines so that nobody can tread on them or trip over them.
- Protect the device from dust, moisture and heat.
- Take care to ensure that no foreign objects (e.g. paper clips) or liquids can get into the inside of the device, as this could cause electrical shocks or short circuits.

Cleaning Instructions

The keyboard should be cleaned with a germicide from time to time. Before cleaning in between the keys on the keyboard with a brush, loosen and remove the key caps using the key removing device. Do not allow dust to get in through the open keyboard mechanics.

Scope of supply

The product includes one TA85 or TA85P keyboard, one user guide and one accessories kit containing the following:

TA85P

- 1 * triple “0" key cap
- 1 * double “0" key cap
- 1 * single “00" key cap
- 1 * single “0" key cap
- 1 * single “.” key cap
- 2 * quadruple variable keys
- 6 * double variable keys
- 14 * single variable keys
- 74 * single transparent plates, 6 * double, 2 * quadruple
- Blank sheets for labelling
- 1 key cap remover
- 1 set of keys
- 1 diskette for programming the keyboard

TA85

- 1 * triple “0" key cap
- 1 * double “0" key cap
- 1 * single “00" key cap
- 2 * quadruple variable keys
- 6 * double variable keys
- 60 * single transparent plates, 6 * double, 2 * quadruple
- Blank sheets for labelling
- 1 key cap remover
- 1 set of keys

The set of keys contains:
Key 1 for key position 1
Key 2 for key positions 1 and 2
Key 3 for key positions 1, 2 and 3
Key 4 for key positions 1, 2, 3 and 4

The following items can be ordered optionally:

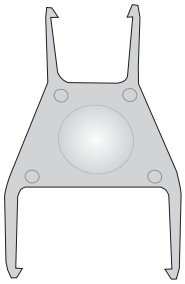
Accessories kit 1:	20 dummy keys (1 x 1)
Accessories kit 2:	6 double variable keys
	2 quadruple variable keys
Accessories kit 3:	12 single variable keys

Depending on your order, the keyboard may have a swipe-card reader.

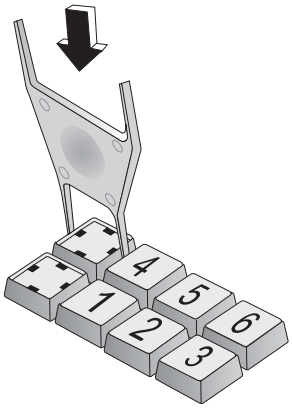
If damage has occurred during shipping or if the package contents do not match the delivery note, promptly notify your Wincor Nixdorf sales outlet.

Mounting keys

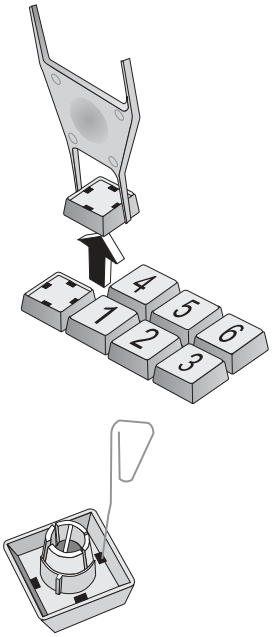
Exchanging the Keys



You can remove each of the key caps using the key removal device enclosed, pulling the key upwards.



Place the key removal device on the selected key until you hear a click.



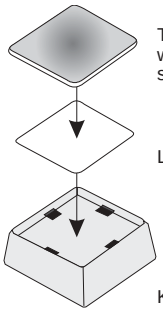
Now remove this key from the keyboard by pulling upwards.

If the key that has been removed carries a number or character, you can change the lettering as follows:

Using a thin object (e.g. paper-clip etc.), press upwards against the plastic cover through the opening on the underside of the key. Please refer to the next chapter for instructions on how to insert the new label.

Inserting Key Labels

Below, you will find instructions on how to insert the key labels:



Each key should be labelled individually. You can use the empty labels delivered with the system to do so.

Place the written label on the key cap.

Insert the transparent key cover with the **mat** and **concave** side upwards until it clicks into place in the key cap.

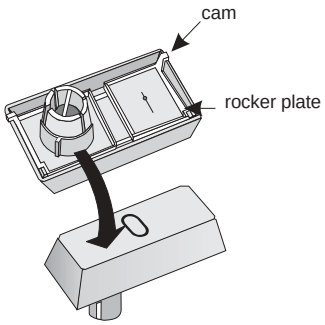
The labels are replaced as follows:

① Remove the key cap from the keyboard (see removing the key cap) and pull the transparent key cap upwards.

② The transparent key cover is then released and the label can be removed.

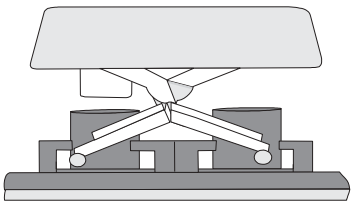
③ Replace the label and fit the transparent key cover (with the mat and concave side facing upwards) back into the key cap.

Inserting Key Caps



Insert the key cap in the keyboard and press firmly into place.

When inserting double or triple keys, please ensure that the guide cylinder is on the left in horizontal resp. on top in vertical position. The quadruple key caps are corresponding - with the guide cylinder arranged on the upper left position.



quadruple key cap with scissors

Ensure when inserting the key caps that the white cam of the rocker plate is in the planned bulge of the keyboard.

If you hear a click, the key caps are inserted correctly.

The TA85/TA85P keyboard

General

The TA85 keyboard and the free-programmable version TA85P have a keypad with maximum 84 usable keys. Except for the numeric keys (0 to 9), the “C” key and the “,” key, the key layout is flexible, i.e. any two contiguous keys can be combined to form a double key and any four keys can be combined to form a quadruple key, either horizontally or vertically.

The TA85/TA85P keyboard is equipped with a key switch with 6 switch positions and is available with or without a swipecard reader.

A power-up reset and an automatic self-test are performed each time the POS terminal is switched on. Following these self-tests, the keyboard is ready for operation. The keyboard receives its power from the POS system.

TA85/TA85P keyboard

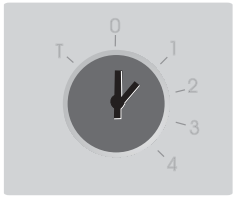
Keypad

In the TA85/TA85P keypad, two keys can be combined to form a double key and four keys to form a quadruple key, either horizontally or vertically. Only one key code is generated by each double or quadruple key.

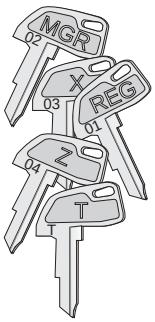
Key caps can be changed on the spot using the key cap remover included in the scope of supply. When using the key caps for multiple keys, note the position of the pin on the underside, making sure that the desired code is set. According to the Wincor Nixdorf Convention the guide cylinder is positioned left (double key horizontal), on the bottom (double key vertical) or on the bottom left (quadruple key).

Key switch

The TA85/TA85P keyboard is equipped with a key switch with 6 switch positions. Switch position 0 is the basic position; switch positions 1-4 are provided for customer-specific applications. In positions 0 and 1, the key can be removed.



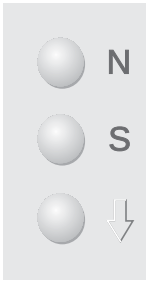
The sixth switch position, which is designated on the lock by T, is intended for use by Field Engineering. From switch position 0, the key provided can be turned to position T only. This key is not included in the scope of supply.



The key switch has only one closure, i.e. there is only one set of keys for all keylocks that includes the above-mentioned key variants for the various switch positions.

LEDs

The TA85/TA85P has 3 LEDs:



Num Lock

Shift Lock

Scroll Lock

They are activated or de-activated by the application software.

Num Lock
When the LED Num Lock lights up the numerical keypad is active (figures, decimal point and comma) and not the basic level (cursor, “delete” etc.). You can switch between these levels with the NUM key (also on a second connected keyboard) or via software, depending on the operating system.

Shift Lock
When the use of capital letters is activated, this LED lights up. All letters will be output as CAPS. The other characters are output normally, e.g. numerics.

Scroll Lock
Scrolling is inactive, when this LED lights up. The scrolling function is only used by few software programs.

Swipecard reader (SCR)

The TA85/TA85P is optionally equipped with a swipecard reader.

Using the Swipecard reader

Pull the magnetic card evenly and quickly, from top to bottom, through the slot on the swipecard reader. Make sure that the magnetic stripe is not facing the keys.

Note the following precautions when handling magnetic cards:

- Never allow magnetic cards to come into contact with liquids.
- Never bend or fold magnetic cards.
- Never expose magnetic cards to a magnetic field.

Insert the magnetic card in the special slot provided on the reader from the right-hand side only; inserting the card at another location could damage the read heads.

Cleaning Instructions

In order to ensure that the quality of reading results is maintained, clean the swipecard reader at least once a week. To do this, use the special cleaning card that can be ordered from Wincor Nixdorf.

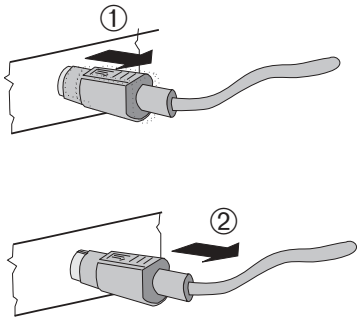
Connection method

The connector for the keyboard is a standard 6-pin mini-DIN connector. The cable can be ordered optionally as a
- 0.8 m cable,
- 1.5 m cable or
- 3.0 m cable.

Releasing the Cable Connection

Never remove a cable from a connector socket by simply pulling on the cable. Always remove the cable by the connector housing. Please follow the instructions below when removing cables:

- Turn off all switches to the mains and electrical equipment.
- Remove all mains cables from the shockproof sockets installed in the building.
- Loosen all cables on the electrical equipment.



The mini-DIN connectors are left plugged in until unlocked.

Using your thumb, pull gently on plastic connector housing ①, removing the connector from the socket. This unlocks the connector. The metal part of the connector is now visible.

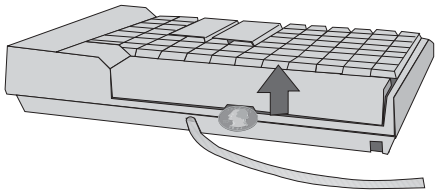
Now remove the connector from the socket ②.

Self-test

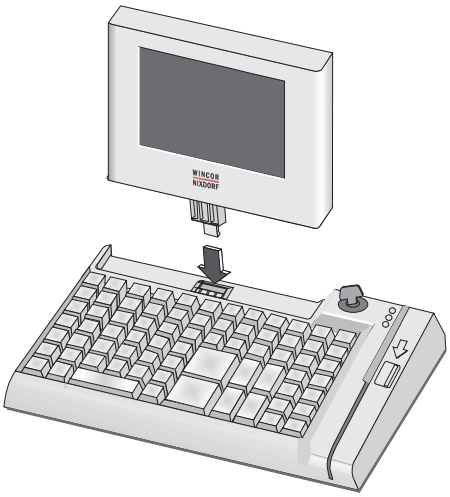
A self-test of the keyboard is performed each time the POS terminal is switched on. During this test, the interface to the system is disabled. The system is informed of the successful completion of the test.

Mounting the BA69

Turn round the keyboard.

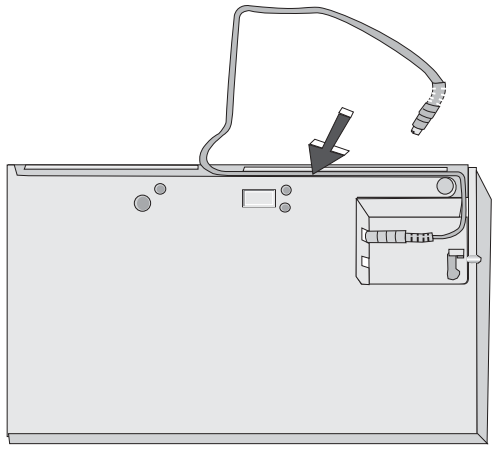


There is a gap in the top, which is stuck on the keyboard.
Lift up the top with a coin.

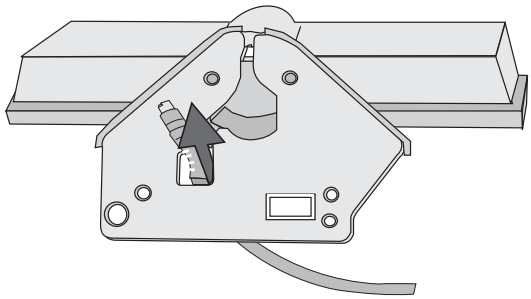


Connect the cashier display into the keyboard.

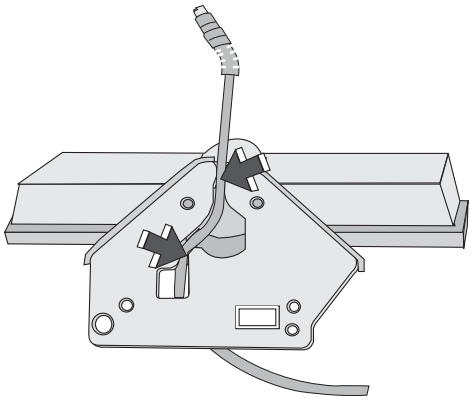
Mounting the BA63/BA66



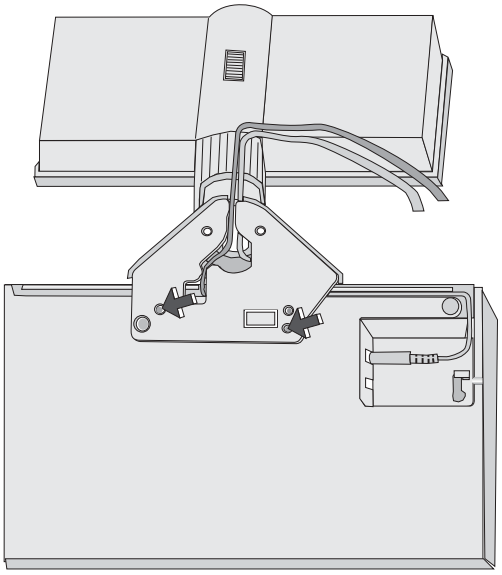
Before installing, make sure that the mains supply has been pulled out. Clip the keyboard cable that is connected to a BEETLE or a PC into the rail at the backside of the keyboard.



Put the keyboard cable through the opening of the foot of the BA63/BA66 (see picture).

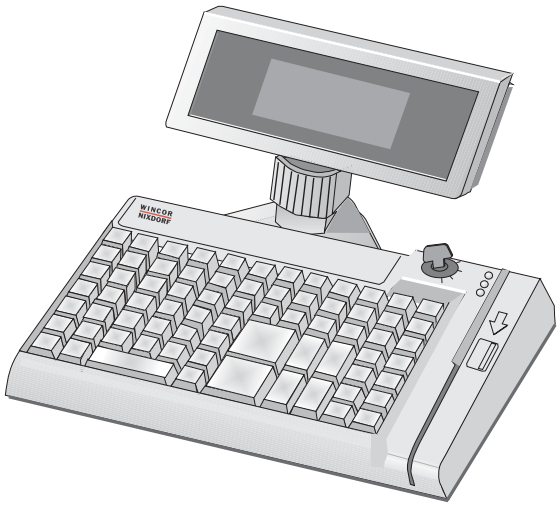


Then press the cable at the positions (see picture) into the guidance so that it “disappears”.



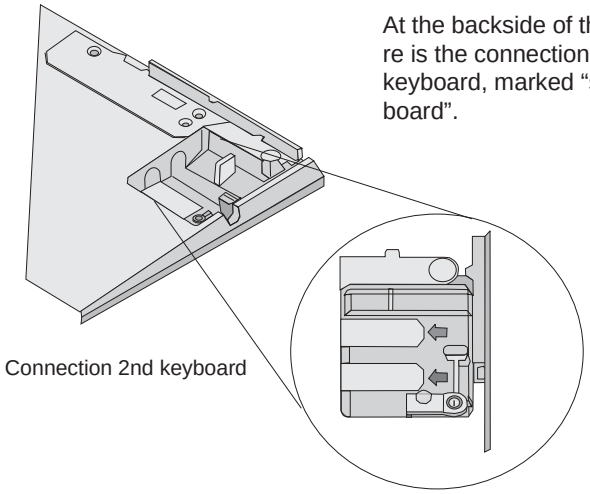
Fasten the BA63/BA66 with the two screws at the keyboard (see arrows).

Connect the keyboard cable and the screen cable to your BEETLE system and then switch on the power.



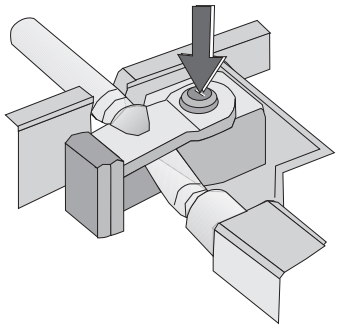
Connecting a 2nd Keyboard to theTA85P

The TA85P has a connection for a second keyboard for example to plug in an additional PC-keyboard for text input or for programming the TA85P.



Connection 2nd keyboard

At the backside of the keyboard there is the connection for the second keyboard, marked “second keyboard”.



Plug the connector into the 2nd connection and secure the cable in that position with the screw and the metal cover (see picture).

In the case that the connected 2nd keyboard is a POS-keyboard (TA57, TA61 or Ta64) and that the TA85P uses a magnetic swipe card reader or a central keylock a simultaneous use of these POS functions on the 2nd keyboard is not allowed. With the TA85P you can only use the 2nd keyboard alternately (and not at the same time with the 1st keyboard!)

Programmable Keyboard TA85P

By programming the TA85P you have the possibility to flexibly adjust the keyboard to your special needs.

You can

- design the keyboard layout according to your needs by - for example - moving the numeric block to any place on the keyboard,
- define several levels for the keycodes, thus using the same key as a functional key on one level and for text input on another level,
- port your existing software application with less effort, as you can keep up the key codes.

Files on the Diskette

The TA85P keyboard is delivered with a diskette containing the following files:

KBUTI.EXE	Dialogue utility for programming the keyboard
KBUTIHLP.HLP	Help file fot the dialogue utility
SENDKBT.EXE	To send a keyboard table from a file to the keyboard
RCVKBT.EXE	To receive a keyboard table and save it in a file
KB2DEF.EXE	To reset a keyboard to the default state
KBCHKDEF.EXE	To check for default state (default or programmed)
TA58DEF.KBT	Default keyboard table for TA58P (!)

README.TXT	Readme file for programming the keyboards TA85P and TA58P

Programming the keyboards TA85P is described in detail in the Readme file.

Mode

The TA85P keyboard work in different modes:

“Windows Mode”	This is the default state of the keyboard (not programmed)
“DOS Mode”	This state is used by the Retail Device Interface (RDI), it is entered by rsp. commands from Windows Mode
“Programmed”	In this state a table has been sent to the keyboard and is stored in Flash memory; the table controls what codes are sent for keys and for the components key lock or magnetic stripe reader

Moreover there are mixed modes possible:

“Programmed”	for the keys
“Windows” rsp. “DOS-Modus”	for the components key lock, magnetic stripe reader,

The DOS Mode is primarily used by RDI, the Windows Mode is used by the OPOS components. A description of this protocol can be sent to you by Wincor Nixdorf on request. When developing new software you should generally use the Windows Mode.

Main functions

The dialogue utility KBUTI.EXE serves to:

- programming the codes for the keys and the components key lock, magnetic stripe reader
- send a keyboard table to the keyboard
- receive a table from the keyboard and to store it in a file
- reset a keyboard into its default state, i.e. Windows Mode and default codes for the keys
- check for keyboard state (default or programmed)

So the functionality of the programs

- SENDKBT.EXE
- RCVKBT.EXE
- KB2DEF.EXE
- KBCHKDEF.EXE

is part of the dialogue utility. These 4 programs therefore are intended to be used in conjunction with .BAT files. They return values that can be checked using ERRORLEVEL. The values returned together with an example you will find in the Readme file.

Files containing keyboard tables for TA85P have by convention the extension .KBT.

Keyboard Connection

To program a TA85P keyboard connect this directly to the BEETLE system (or a PC with Mini-DIN connector). This interface is named the primary keyboard interface. A standard PC keyboard, TA57 or TA58 then is connected to the secondary keyboard interface of the TA85P. So the TA85P has a keyboard wedge, whose inputs are not equivalent. Commands from the system are sent to the primary interface and may then be

transferred to the secondary interface. A reaction of the system to a key stroke, is transmitted to the keyboard, whose key became operated - thus pressed or released.

Help

The dialogue utility KBUTI.EXE has a context sensitive help, which is activated as usual with the F1 key.

Creating Tables

The creation of tables with the utility KBUTI.EXE can be done

- under DOS
- in DOS Mode of Windows 9x
- in a DOS window of Windows 9x
- and in a DOS window of Windows NT

Sending and Receiving tables, however, is only possible under DOS or Windows 9x. The restrictions of Windows NT do not allow it.

The creation of tables request a mouse.

It is possible to define up to 4 keyboard levels. They may be dependent of:

- freely defined level keys (POS Shift levels)
- Ctrl, Alt, AltGr state
- CapsLock and/or ScrollLock state

You can define simple codes, codes in Shift state, key combinations strings built from that like e.g.:

- a
- A
- *
- 00
- {Ctrl+F5}

- {Shift+F8}
- {Alt+F1}
- {Alt+#123}
- {Ctrl+f}{Alt+#240}

For a number of codes symbolic names are available, like F1, .., F12, Shift, Ctrl, Alt, AltGr, Enter, Return, Left, PgUp etc.

Specification of codes not only may be done in symbolic form like above, but also as hexadecimal 8042 scan codes. This, however, is only in a few cases required and will make sense!

Specifying hexadecimal scan codes should be avoided at all, unless there are good reasons! A fairly good knowledge of their structure and all their details is required!

Before programming the following is to be defined:

- Target keyboard TA85P (can not be changed later)
- Keyboard language, e.g. US for USA, GR for Germany etc.
- Type of level selection (none, POS Shift, Ctrl/Alt/AltGr, Caps-Lock/ScrollLock)

Specification of the keyboard language is required to allow the keyboard to deliver such codes, that can be interpreted later correctly by the language keyboard driver for the rsp. country. The target configuration is important, not the configuration at the time when the table is created.

For the codes of the key lock and the data of the various tracks of the magnetic stripe reader, header and trailer codes can be programmed. This allows the application to distinguish those from normal key strokes.

The codes assigned can be viewed key by key (also with Autoincrement) with the help of KBUTI.EXE. They also can be shown in a more compact form on the screen or for documentation purposes can be written into a file with extension .TXT or directly be sent to a printer (LPT1).

Sending and Receiving Tables

The codes assigned are stored in a file with default extension .KBT. Such files can be loaded by the dialogue utility KBUTI.EXE and the tables sent to the keyboard. They also can be sent directly from such files by the batch utility SENDKBT.EXE. Accordingly KBUTI.EXE may receive a table from the TA85P, which then can be viewed or stored in a .KBT file. This, however, can also be done using RCVKBT.EXE by specifying the file name as a parameter.

During transmission of tables no keyboard activity is allowed, such as key presses or key position change otherwise the transmission may be influenced badly!

Useful hints

Programming keyboards by tables allows a very flexible keyboard layout. However, one should have some thought about the task of a technician in the field! From logistics point of view it should be ensured that:

- Spare keyboards are delivered always loaded with customer specific tables
- with starting the system the tables are loaded automatically

The batch utilities

- SENDKBT.EXE
- RCVKBT.EXE
- KB2DEF.EXE
- KBCHKDEF.EXE

are provided especially for this situation to allow support of the technicians. However, the programs alone are not helpful for a technician!

Instead they should be available dependent on the solution on disks together with rsp. tables at the site. Also they should be executable with the resources available there!

Take care, that there must not be any keyboard activity when they are executed! This has to be strongly observed, if such a utility is run automatically at start of the system! This at least requires proper error handling rsp. retries in the execution of .BAT files.

Double, Triple, and Quad keys only have a cylindric part responsible for generating the respective code. So it is useful to assign the code to all possible positions covered by a key.

Appendix

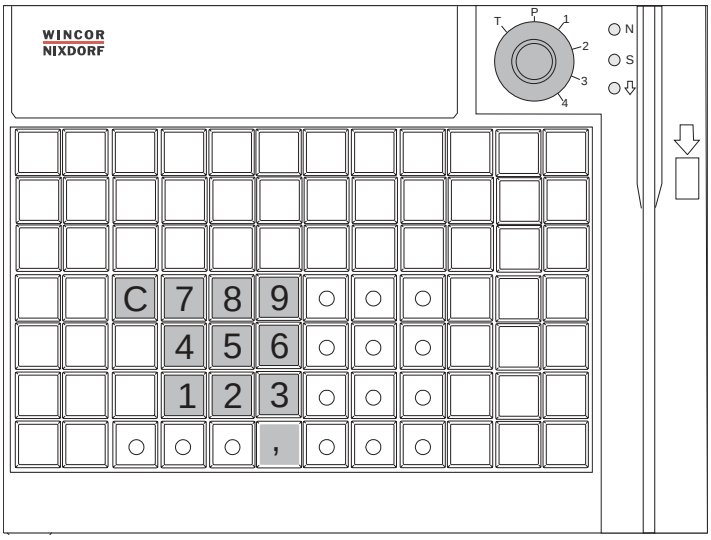
Technical Data

Housing dimensions / Weight	Footprint: 280mm * 189mm Height: 54mm; Weight: 1.16 kg
Cable length	Optional: 0.8 m, 1.5 m or 3.0 m
Power supply	TA85: 5V +/- 20%, max. 140mA TA85P: 5V +/- 10%, max. 170mA
Protocol	PC AT interface, bidirectional, serial, synchronous
Connection	TA85: Mini-DIN connector (6-pin.) TA85P: 1 Mini-DIN connector (6-pin.) 1 Mini-DIN connector for the 2. keyboard
Keyboard	Keyboard with variable key assignment, two-key rollover*
Microprocessor	TA85: CMOS-CPU 87C51FA, 12MHz TA85P: CMOS-CPU C515A, 12MHz
FlashROM	TA85: - TA85P: 32 KByte
Power-up reset	Yes
Self-test	Yes
LEDs	3 (Num Lock, Shift Lock, Scroll Lock)
Technology	CMOS, standard TTL
Key switch	Switch positions: 5 plus insertion position
Swipecard reader	Number of tracks : 3 Magnetic card coding: to ISO 7811/2 Reading rate: 15 to 80cm/s

*Only two keys pressed at the same time are accepted. With the simultaneous operation of more than two keys the third and all further keys are suppressed.

Keyboard layout

This is the keyboard layout delivered ex works. It is the same for both keyboards. With the TA85P keyboard it is possible to shift the numerical block. You can also use any key, depending on the applicated program.

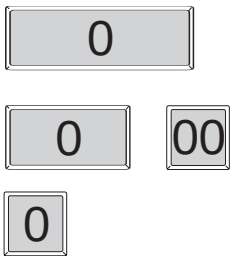


Labelled key, single (fitted at the factory)

9 Key with inscription (numeric keypad)

Freely assignable

A useful assignment of the TA85/TA85P in the default setting:



Note
In these cases only the key “0" as ASCII-Code is given from the keyboard. Other keys (”0") must be evaluated before application.

Keyboard Codes (Default)

0	1	2	3	4	5	6	7	8	t	F11	F12
0b	02	03	04	05	06	07	08	09	14	57	58
0b 30	02 31	03 32	04 33	05 34	06 35	07 36	08 37	09 38	14 74	85 00	86 00
/	;	=	[	\	]	'	`	.	\	*	-
35	27	0d	1a	2b	1b	28	29	34	56	37	0c
35 2f	27 3b	0d 3d	1a 30	2b 5c	1b 5d	28 27	29 60	34 2e	56 5c	37 2a	0c 2d
ESC	BS	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
01	0e	3b	3c	3d	3e	3f	40	41	42	43	44
01 1b	0e 08	3b 00	3c 00	3d 00	3e 00	3f 00	40 00	41 00	42 00	43 00	44 00
Home	CUp	PgUp	7	8	9	a	b	c	d	e	f
e0 47	e0 48	e0 49	47	48	49	1e	30	2e	20	12	21
47 e0	48 e0	49 e0	47 37	48 38	49 39	1e 61	30 62	2e 63	20 64	12 65	21 66
CLft	Space	CRgt	4	5	6	g	h	i	j	k	l
e0 4b	39	e0 4d	4b	4c	4d	22	23	17	24	25	26
4b e0	39 20	4d e0	4b 34	4c 35	4d 36	22 67	23 68	17 69	24 6a	25 6b	26 6c
End	CDn	PgDn	1	2	3	CR	m	z	o	p	q
e0 4f	e0 50	e0 51	4f	50	51	1c	32	2c	18	19	10
4f e0	50 e0	51 e0	4f 31	50 32	51 33	1c 0d	32 6d	2c 7a	18 6f	19 70	10 71
+	-	0	r	s	.	u	v	w	x	y	n
4e	4a	52	13	1f	53	16	2f	11	2d	15	31
4e 2b	4a 2d	52 30	13 72	1f 73	53 2e	16 75	2f 76	11 77	2d 78	15 79	31 6e

Legend
ESC behaviour, provided US keyboard driver is in use
01 Code INT 15h level (scan code, only make code)
01 1b Code INT 16h level (scan code, ASCII code)