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APART			PLC	ADIT DOS	PX(T)
Address	Coding	Length	Memory Contents	Formatting	On the display
EB5 AB5 MB5	Binary	0	eg. EB5 0100 0001 EB6 0100 0010 EB7 0100 0011 EB8 0100 0100 EB9 0100 0101	5 digits right-justified leading zeros 5 digits left-justified leading zeros	00065 65
	Bit	10	eg. AB5 0100 0001 AB6 0100 0010 AB7 0100 0011	10 digits right-justified 10 digits left-justified	10·0100·0001 10·0100·0001
EB5 EW5 ED5 AB5 AW5 AD5	BCD	7	eg. MB5 0100 0001 41 MB6 0100 0010 42 MB7 0100 0011 43 MB8 0100 0100 44	a) 7 digits b) 5 digits right-justified	a) 4142434 b) 42434
MB5 MW5 MD5	ASCII	6	eg. MB5 0100 0001 A MB6 0100 0010 B MB7 0100 0011 C MB8 0100 0100 D MB9 0100 0101 E MB10 0100 0110 F MB11 0100 0111 G	a) 6 digits b) 5 digits right-justified	a) ABCDEF b) BCDEF
EW5 AW5 MW5	Binary	0	eg. EB5 0100 0001 EB6 0100 0010 EB7 0100 0011 = 16 706	a) 4 digits left-justified b) 4 digits right-justified	a) 1670 b) 6706
	Bit	10	eg. MB5 0100 0001 MB6 0100 0010 MB7 0100 0011	10 digits right-justified 10 digits left-justified	01·0100·0010 01·0100·0010

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APART			PLC	ADIT DOS	PX(T)
Address	Coding	Length	Memory Contents	Formatting	On the display
ED5 AD5 MD5	Binary	0	eg. EB5 0100 0001 EB6 0100 0010 EB7 0100 0011 EB8 0100 0100 EB9 0100 0101 = 1094861636	8 digits right-justified leading zeros left-justified	94861636 10948616
	Bit	10	eg. AB5 0100 0001 AB6 0100 0010 AB7 0100 0011 AB8 0100 0100 AB9 0100 0101	a) 10 digits b) 7 digits left-justified leading zeros right-justified a) 10 digits b) 7 digits	a) 11·0100·0100 b) 11·0100·0 a) 11·0100·0100 b) 100·0100
a) DL3 b) DR3	Binary	0	eg. DL3 0100 0100 68 DR3 0100 0101 69 DL4 0100 0110 DR4 0100 0111	10 digits right-justified no leading zeros	a) 68 b) 69
DL3	Bit	10	eg. DL3 0100 0100 DR3 0100 0101 DL4 0100 0110	10 digits left-justified leading zeros	1·0100·0100
DL3 DW3 DD3	BCD	5	eg. DL3 0100 0100 44 DR3 0100 0101 45 DL4 0100 0110 46	5 digits right-justified leading zeros	44454
	ASCII	4	eg. DR2 0100 0100 D DL3 0100 0101 E DR3 0100 0110 F DL4 0100 0111 G DR4 0100 1000 H	a) 4 digits b) 3 digits right-justified no leading zeros	a) EFGH b) FGH

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APART			PLC	ADIT DOS	PX(T)
Address	Coding	Length	Memory Contents	Formatting	On the display
DR4	Bit	10	eg. DL4 0100 0100 DR4 0100 0101 DL5 0100 0110	10 digits left-justified leading zeros	10·0100·0101
	BCD	5	eg. DR4 0100 0111 47 DL5 0100 1000 48 DR5 0100 1001 49	5 digits right-justified no leading zeros	47484
	ASCII	4	eg. DR4 0100 1000 H DL5 0100 1001 I DR5 0100 1010 J DL6 0100 1011 K	a) 4 digits b) 3 digits left-justified	a) HIJK b) HIJ
DW4	Binary	0	eg. DR3 0100 0110 DL4 1100 0111 DR4 0100 1000	6 digits right-justified	-14520
	Bit	10	eg. DR3 0100 0110 DL4 1100 0111 DR4 0100 1000	a) 10 digits b) 8 digits left-justified	a) 11·0100·1000 b) 11·0100·10
DD0	Binary	0	eg. DL0 0100 0001 DR0 0100 0010 DL1 0100 0011 DR1 0100 0100 DL2 0100 0101	10 digits left-justified	1094861636
	Bit	10	eg. DL0 0100 0001 DR0 0100 0010 DL1 0100 0011 DR1 0100 0100	a) 10 digits b) 8 digits right-justified	a) 11·0100·0100 b) 0100·0100

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Transmitting Variable Attributes

A variable value which is to be displayed may be given the following attributes:

Attribute	Control Code
Negative prefix	10_H
Flashing underline ("_"); Flashes alternately with the lowest value digit of the variable value	20_H
Flashing question mark ("?"); Flashes alternately with the lowest value digit of the variable value	40_H
Negative prefix and flashing underline	30_H
Negative prefix and flashing question mark	50_H

To set parameters for this utility you will need to state an address which marks the start of a "list" of 32 Attribute-Bytes for 32 variables (variables 0 ... 31).

Please note: For the display systems described in this manual, only the first 8 Bytes (variables 0 ... 7) are of significance.

One variable is assigned to each byte on this list (1st byte → Variable 0, 2nd byte → Variable 1, etc.).

If a variable is to be displayed with a particular attribute, the relevant control code must be entered in the corresponding byte (depending on the variable number). The list of attribute-bytes is always valid for the variables of the current text, ie. the text to be displayed. Before calling up a new text, this list should be updated, if required. For example, reset all bytes to 00_H.

Example: List of attribute-bytes;
Start address for variable attributes is AB 90.

AB 90	00_H	Variable 0 without attribute
AB 91	10_H	Variable 1 with negative prefix
AB 92	20_H	Variable 2 with flashing "_"
AB 93	30_H	Variable 3 with negative prefix and flashing "_"
	:	
	:	etc.

Valid addresses: EB, AB, MB, DL, DR
(See page 91 for key)

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Special Functions

To use the special functions you will need to state the address under which the PLC has entered the special function code. A value greater or less than 0 will trigger the corresponding special function in the display system.

Special Function		Special Function Code (hexadecimal)
Segment Test	on	01_H
	off	02_H
Output Version Number		03_H
Auto Display of Text Memory Contents	on	04_H
	off	05_H
Clear Display		06_H
Scroll	downwards	08_H
	upwards	09_H
Scroll Jump to Start of Text		$0A_H$
Hardcopy		$0B_H$

- **Segment Test:**
  All pixels on the display and all LEDs are driven; all the pixels that are intact, plus the LEDs will flash! When the segment test is switched off the last text to be displayed will reappear. System messages displayed previously will not reappear!

  To maintain equal brightness on all display segments, we recommend that you run the segment test every week for approximately 3 hours.

- **Output Version Number:**
  Unit description and version number will be displayed. This is the default message on power-up.
- **Auto Display of Text Memory Contents:**
  When this is switched on, all records from 1 ... 9 999 are automatically displayed one after the other. Available records are displayed with their text; for records that are not available, the text number will appear in the format: "xxxx" (xxxx ... corresponding text number).
  The unit will automatically switch off after record number 9 999 has been displayed.
- **Clear Display:**
  The display and all variable positions are cleared.
- **Scroll:**
  See Page 10.
- **Hardcopy:**
  The displayed text is sent to a printer via the RS 232 interface. Printer parameters must be set with the ADIT DOS default settings (see page 33). Print format can be set with the $Q-configuration instruction (see page 33).

Valid Addresses: EB, AB, MB, DL, DR (See page 91 for key)
Valid Codings: Binary, BCD

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Function Key Information

When parameters are set for this utility, each function key on the operator terminal is assigned one bit in the PLC-memory. Whenever a function key is pressed, the corresponding bit will be set; when the key is released, the status is reset to 0.

The allocation of addresses in APART is very flexible. For example, a bit address (E, A, M) can be stated for each individual function key, or a "start address" can be entered for groups of function keys forming a sequence.

A table, as shown below, is provided for the allocation of addresses (the information in brackets shows the column descriptions used in APART):

1 Function Key Number (F-Key No.)	2 Number of function keys in a sequence (No. F-Keys.)	3 PLC-address (Address)	4 Number of data block (DB No.)

The number of the function key corresponds to the number in the key description (F1 → No. = 1 etc.).
In column 2 you need to enter the number of function keys included within the group, to which the PLC-address given in column 3 refers. If a function key is to be addressed individually, enter 1 in column 2.
Column 4 is only required with data addresses.

The address width (Bit/Byte/Word/Double-word address) indicates the group in which the function keys are allocated to the individual bits (starting with the lowest value bit of the address and therefore the lowest value bit of the group).

For example, if 10 function keys, starting with function key number 1 (F1) are allocated to MB 20,

APART:

F-Key No.	No. F-Keys	Address	DB No.
1	10	MB 20	

the following allocation will result:

	7	6	6	4	3	2	1	0	← Bit
MB 20	F8	F7	F6	F5	F4	F3	F2	F1	
MB 21							F10	F9	
MB 22									

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40 function keys, starting with F1, with parameters set for address AD 0

APART:

F-Key No.	No. F-Keys	Address	DB No.
1	40	AD 0	

would result in the following allocation:

	7	6	5	4	3	2	1	0	← Bit
AD 0/AB 0	F32	.	.	.	.	.	.	F25	
AB 1	F24	.	.	.	.	.	.	F17	
AB 2	F16	.	.	.	.	.	.	F9	
AB 3	F8	.	.	.	.	.	F2	F1	
AD 4/AB 4									
AB 5									
AB 6									
AB 7	F40	.	.	.	.	.	.	F33	
AD 8/AB 8									

If the number of bits in an address is not enough to cover all the function keys contained within a group, the next address with the same address width will be used. The remaining function keys will then be assigned to the bits in the next address, again starting with bit 0.

Valid addresses: E, EB, EW, ED M, MB, MW, MD
A, AB, AW, AD DL, DR, DW, DD
(See page 91 for key)

Additional Keys and AN-Keys

To directly allocate Bits in the controller to additional keys connected to X0 ... X7, and to alphanumeric and special keys (AN-keys), enter the following logic F-key numbers:

PXT 20 PGS5

Additional input	F-Key No.	Additional input	F-Key No.
X0	25	X4	29
X1	26	X5	30
X2	27	X6	31
X3	28	X7	32

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PXT 90 PGS5

Additional input	F-Key No.	Additional input	F-Key No.
X0	25	X4	29
X1	26	X5	30
X2	27	X6	31
X3	28	X7	32

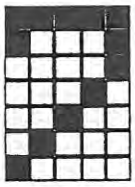
AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.
? A	33	5 I	41	Q	49	v Y	57
# B	34	6 J	42	- R	50	(home)	58
7 C	35	⇓ K	43	0 S	51	END	59
8 D	36	QUIT L	44	. T	52	> Z	60
9 E	37	1 M	45	U	53	SHIFT	61
⇑ F	38	2 N	46	V	54	ALPHA	62
NEXT G	39	3 O	47	^ W	55	SPACE	63
4 H	40	P	48	< X	56	ENTER	64

PXT/TIP 132 PGS5

Additional input	F-Key No.	Additional input	F-Key No.
X0	33	X4	37
X1	34	X5	38
X2	35	X6	39
X3	36	X7	40

AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.
7	41	1	47	↑	53
8	42	2	48	←	54
9	43	3	49	→	55
4	44	+	50	↓	56
5	45	0	51	.	57
6	46	-	52	ENTER	58

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PXT 208 PGS5

Additional input	F-Key No.	Additional input	F-Key No.
X0	9	X4	13
X1	10	X5	14
X2	11	X6	15
X3	12	X7	16

AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.
7	17	5	21	3	25	→	29
8	18	6	22	0	26	↓	30
9	19	1	23	↑	27	.	31
4	20	2	24	←	28	ENTER	32

PXT 216 PGS5

Additional input	F-Key No.	Additional input	F-Key No.
X0	17	X4	21
X1	18	X5	22
X2	19	X6	23
X3	20	X7	24

AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.
7	25	5	29	3	33	→	37
8	26	6	30	0	34	↓	38
9	27	1	31	↑	35	.	39
4	28	2	32	←	36	ENTER	40

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PXT 305 COM-LC

As this unit has no additional inputs, it has no additional keys.

AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.	AN-Key	F-Key No.
S1	13	2	19	8	25	↑	31
S2	14	3	20	9	26	↓	32
S3	15	4	21	-	27	ENT	33
S4	16	5	22	.	28	CLR	34
0	17	6	23	→	29	ESC	35
1	18	7	24	←	30	2nd F	40

Parameters for the AN-keys and additional inputs X0 ... X7 can be set individually or in a group, just like "real" function keys. The allocation scheme of individual keys to the corresponding Bits is also the same as for the function keys (see above).

You do not have to set parameters for the various types of keys (F-keys, AN-keys, X0 ... X7) in separate groups. They can be brought together into a group of F-keys and then be allocated an address. In column 2 of the APART table ("No. of Keys"), the last logic F-key number (occupied by an AN-key) is critical. This F-key number is the number you need to state as the number of consecutive function keys ("No. of Keys").

Please note: The number of function keys stated here does not have to agree with the actual number of "real" and "additional" function keys.

Example: PXT 90 PGS5

F-Key No.	No. of Keys	Address	DB Number
1	64	MB 30	

BUT: 20 F-keys + 8 additional inputs + 32 AN-keys = 60 keys

The same addresses are valid as for the function keys.

Alphanumeric Key Information

Enter the address under which the PLC stores the 8-bit code of the key that is pressed. This is valid for function keys, alphanumeric keys and special keys.

Please note: You must ensure that the $H-configuration instruction is set for the function keys to supply an 8-bit code (see page 34)!

Valid addresses: EB, AB, MB, DL, DR (See page 91 for key).

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Example: (in APART)

Address	DB Number
AB 40	

Driving the LEDs

Please note: All LEDs are dual-coloured (green/red).

Exception: LEDs on the PXT 90 PGS5 and PXT 305 COM-LC are of a single colour (green); the PXT 90 PGS5 does have one additional red LED.

The information from an LED has 3 attributes:

- Status attribute (ON/OFF)
- Flashing attribute (blink on/off)
- Colour attribute (red/green).

Each of these attributes can be altered by means of allocated Bits in the PLC. You yourself can establish which attribute becomes effective with which Bit-level (0 or 1).

As parameters can be very flexible in APART, it is possible to have the most varied address allocation scheme. For example, it is possible to set parameters for both individual or grouped LEDs in a single address, and to activate each data attribute with a different Bit-level.

A table, as shown below, is provided for the allocation of addresses.

Table header in APART:

LED No.	No. of LEDs	LED Attr.	Offset in Bits	Address	DB No.
1	2	3	4	5	6

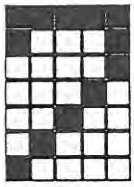
1 LED Number
2 Number of consecutive LEDs
3 LED Attributes
4 Offset in Bits (≥ 1)
5 PLC Address
6 Data Block Number (only with data addresses)

LEDs are numbered consecutively to correspond to their order on the function keys (F1 = LED 1, F2 = LED 2 etc.).

PXT 90 and 92 PGS5 Only: The green LED situated to the right of the function key field is LED 21; the red LED below it is LED 22.
PXT 305 COM-LC Only: The LED on S1 (S3) is LED 13; the LED on S2 (S4) is LED 14.

(The LED on 2nd F is driven internally if the 2nd key level is active).

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The number of LEDs contained within a group should be entered in column 2. The PLC address stated in column 5 refers to this (column 6 is only required with data addresses). If an LED is to be addressed individually, enter 1 in column 2.
In column 3 you need to state which attribute is activated by which bit level (LED attributes: status ON, flashing, red; level: 0 or 1).

Attribute	Activate with level	Entry in Column 3	Remarks
Status ON	1	**ON = 1**	LED OFF if bit level 0
	0	**ON = 0**	LED OFF if bit level 1
Flashing	1	**BLINK = 1**	LED does not flash if bit level 0
	0	**BLINK = 0**	LED does not flash if bit level 1
Red	1	**RED = 1**	LED green if bit level 0
	0	**RED = 0**	LED green if bit level 1

The offset entered in column 4 indicates by how many bits the relevant LED-Bit, relating to the same attribute, is offset. The smallest offset permissible is 1. An offset > 1 is only sensible with bit addresses.

Valid addresses: E, EB, EW, ED — M, MB, MW, MD
A, AB, AW, AD — D, DR, DW, DD
(See page 91 for key)

Additional Outputs

Exception: The PXT 305 COM-LC has no additional outputs.

The additional ouputs on the back of the unit, A0 ... A7, are dealt with in the same way as LEDs. They take their numbering from the first free number in the group of 8.

Example: PXT 90 PGS5

This operator terminal has 22 addressable LEDs (LED nos. 1 ... 22), ie. the first three groups of 8 will be taken up with LED numbers (nos. 1 ... 24). It follows, therefore, that the additional outputs will start from LED no. 25 (A0 = LED no. 25 ... A7 = LED no. 32).

Additional Outputs **A0 ... A7**	correspond to **LED numbers**
PXT 20 PGS5	25 ... 32
PXT 90 PGS5	25 ... 32
PXT/TIP 132 PGS5	33 ... 40
PXT 208 PGS5	9 ... 16
PXT 216 PGS5	17 ... 24

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Editing Set Value Variables

If you wish to input set values, one or more set value variables must be edited by means of markers and variable control characters. This is carried out in ADIT DOS and is mostly done in the same way as with "normal" (true value) variables. The only difference is that the variable is allocated an additional "set value variable" attribute, and also has a defined coding.

Valid Codings for Set Value Variables (Set Value Types)

Set value type (ADIT DOS)	Coding	Value Range
ASCII	ASCII	10 digits, permitted characters: 20_H to FE_H (IBM)
BCD	BCD	0 ... +9 999 999 999
INT 8	Binary: 8 bit signed integer	-128 ... +127
INT 16	Binary: 16 bit signed integer	-32 768 ... +32 767
INT 32	Binary: 32 bit signed integer	-2 147 483 648 ... +2 147 483 647

Please note: Bit coding is not supported on set value variables.

The information regarding variables on page 12 is also valid for the editing and display of set value variables.

Please note:
- The maximum number of variables per text is 8. This is valid for both true value and set value variables.
- Set value variables are displayed with right justification.

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Inputting Set Values

Monitoring Set Values

Binary and BCD-coded set values can be automatically monitored to ensure entries do not exceed specific limits, ie. inputs are monitored to ensure they keep within the permitted set value range.
Set value monitoring is activated if minimum and maximum values are entered when editing set value variables in ADIT DOS. Values should be entered as follows:

ID for Minimum or Maximum value / Variable number and value limit

The set formula for entering this information is:

MINn:(Value)_ or MAXn:(Value)_ ("_" stands for a space)

where **n** stands for variable number (0 ... 7), and **(Value)** represents the value limit you wish to enter.

Examples:

- MIN2:+500_ means that variable 2 may have a minimum value of 500
- MAX3:4000_ means that variable 3 may have a maximum value of 4000
- MIN4:-12.3_ means that variable 4 may have a minimum value of -12.3.

MIN and MAX values can be entered in this way at any point within the text containing the relevant variable. However, you should ensure that the values entered within the text are visible characters, ie. that when the relevant lines are displayed, these characters can also be represented. The advantage in this is that you will be able to see what the minimum and maximum values are, while entering the set values.

Please note: Both the controller and the display system will always process variable values as integers. Figures after the decimal point can be created, however, by entering a decimal point at the appropriate place between the variable markers (#), when editing the variable.
The decimal point just acts as a visual aid; if the variable is formatted as ###.##, the value 12345 will be displayed as 123.45, although internally, calculations will be made using the value 12345. You should always bear this in mind when programming.
In the same way, when set values are monitored by comparing minimum and maximum values, it is only the values that are compared; any decimal point is disregarded.

Therefore, when entering minimum and maximum values, you must always take into account any figures formatted after the decimal point. If a variable has two decimal places, minimum and maximum values must also be entered with two decimal places (eg. not 7.5. but 7.50)!

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Inputting Set Values

Introduction

The following operator terminals:

- PXT 90 PGS5
- PXT 132 PGS5
- TIP 132 PGS5
- PXT 208 PGS5
- PXT 216 PGS5
- PXT 305 COM-LC

have the ability to transmit values to the PLC. These are called **set values**.

Set values are multi-digit ASCII, BCD or binary coded values, which are created using the keypad on the operator terminal and then transmitted to the PLC by pressing ENTER.

With binary and BCD coded set values, it is possible to monitor a preset range of values. Pressing the ENTER key will only send values to the PLC if the minimum and maximum value range has not been exceeded.

After the data has been sent, the variable value is updated on the display with the contents of the allocated PLC memory sector. This is done as an acknowledgement.
As in the case of true value variables, the value stored in the allocated sector of the controller will be displayed. In this way, a set value variable corresponds to a true value variable, in that values may be altered or set through the keypad on the operator terminal.

A set value variable can also be scaled, that is, it can be converted by using a multiplying factor and then adding an offset. With set values, however, scaling is done in reverse, ie. the offset is subtracted from the set value and the result is divided by the factor before being sent.

Set Value Types and their Value Ranges

Set Value Type	ID in APART	Value Range
INT 8	*1	-128 ... +127
INT 16	*2	-32 768 ... +32 767
INT 32	*4	-2 147 483 648 ... +2 147 483 647
BCD	*0	0 ... 9 999 999 999
ASCII	*0	All IBM characters from 20_H to FE_H

If minimum and maximum values are entered incorrectly, so that set value monitoring cannot guarantee that values are kept within a permitted range, values may exceed the desired limits and your results may be falsified (eg. entering "200" for an INT 8 variable).

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Inputting Set Values



Requirements for Entering Set Values

To enter set values you will need the following:

- [←], [→], [.], [0] to [9], [+], [-], CLEAR and ENTER keys on the operator terminal
- the operator terminal configured with $H:1

[←] and [→] are used to select the set value variable you require.
[.] switches set value editor mode on and off.
The numeric keys, and where available, alpha keys, are used for inputting the variable value.
[+] and [-] are used to determine the prefix.
CLEAR deletes the set value by entering 0.
ENTER transmits the set value to the controller.

Please note: The $J-configuration instruction can be used to replace the [+], [-] and CLEAR-keys with function keys (see page 35).

Sequence for Entering Set Values

Fundamentals: When you call up a text with variables, the contents of the relevant PLC memory sectors will be displayed as the variable values.
The first set value variable is invisible; the cursor is invisible, but is positioned at the last variable position.

Sequence: The table that follows describes what you need to do, and in what order.

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Step	Action	Key(s) to press	Explanation
1	Select the required variable	[→] / [←]	Each time a key is pressed, the underline ("_") moves to the next / previous set value variable; Variables in background text are automatically scrolled.
2	Switch to set value editor mode	[.]	The underline ("_") disappears; a cursor (▮) appears either at the lowest value position or at the last digit to be edited.
3	Edit set value (input characters; possibly delete characters, position cursor)		**"Calculator" Mode** is active if: **a)** after step 2, the true value equals 0 and the cursor is positioned at the lowest value position **OR** **b)** the value has been deleted using CLEAR (value and cursor as **a)**)
		CLEAR	
		[1] ... [9],	In this mode, each new character is entered at the lowest value position and pushes any characters entered previously one place to the left.
		[←]	**"Overwrite" Mode** is active, if the [←] key has been pressed once while in "Calculator" mode.
		[→], [←]	In this mode, the character is entered at the place selected by [→] and [←], without actually moving the cursor.
		[↑], [↓]	**Both Modes** The set value displayed can be increased or decreased by one each time [↑] or [↓] is pressed. If the cursor is positioned at the lowest value position, the whole value is increased / decreased, otherwise the change will only affect the character at the cursor position. **Exception:** With ASCII set values, only the character at the cursor position can be increased / decreased.

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Step	Action	Key(s) to press	Explanation
4	Enable set value	ENTER	**As the set values are enabled**, they are compared with the set minimum and maximum values. **a)** If the set value is valid, it is transmitted to the PLC and set value editor mode is switched off.
	OR		**b)** If the set value lies outside the range of permitted minimum and maximum values, the value will flash and will not be transmitted to the PLC. A new value may be entered immediately (see step 3).
	Quit set value input	[.]	**After quitting**, the displayed value is overwritten with the contents of the allocated PLC memory sector.

Password Protection

It is possible to block the input of set values by issuing a password in the $H-configuration instruction (see page 34).

If a password has been set, when the unit is powered up you will be unable to enter any set values until that password is entered.

To enter a password, enter the characters you require and then press ENTER. The characters you enter will be invisible. If you make a mistake, you can re-enter the password immediately.

Each time the password is entered (correctly), the function will switch between "Block Set Value Input" and "Trigger Set Value Input".

When entering a password you must ensure that the keyboard input has not been bypassed internally ($H:1; see page 34), and that the PXT unit is not in set value editor mode.

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Examples

All the following examples presume that the maximum number of 11 markers (10 characters + prefix) has been edited in the text for the set value variables.

Example 1

Set value input:

							–	1	2	3

Variable Coding:

INT 8	INT 16	INT 32	BCD	ASCII
X				

Length:

Variable Address: MB 5

PLC entry

	MB 0 / DL 0
	MB 1 / DR 0
	MB 2 / DL 1
	MB 3 / DR 1
	MB 4 / DL 2
85_H	MB 5 / DR 2
	MB 6 / DL 3
	MB 7 / DR 3
	MB 8 / DL 4

Display after set value has been enabled

							–	1	2	3

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Example 2

Set value input:

							–	1	2	3

Variable Coding:

INT 8	INT 16	INT 32	BCD	ASCII
☐	☒	☐	☐	☐

Length:

Variable Address: MW 5

PLC entry

	MB 0 / DL 0
	MB 1 / DR 0
	MB 2 / DL 1
	MB 3 / DR 1
	MB 4 / DL 2
FF_H	MB 5 / DR 2
85_H	MB 6 / DL 3
	MB 7 / DR 3
	MB 8 / DL 4

Display after set value has been enabled

							–	1	2	3

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Example 3

Set value input:

							–	1	2	3

Variable Coding:

INT 8	INT 16	INT 32	BCD	ASCII
☐	☐	☒	☐	☐

Length:

Variable Address: MD 5

PLC entry

	MB 0 / DL 0
	MB 1 / DR 0
	MB 2 / DL 1
	MB 3 / DR 1
	MB 4 / DL 2
FF_H	MB 5 / DR 2
FF_H	MB 6 / DL 3
FF_H	MB 7 / DR 3
85_H	MB 8 / DL 4

Display after set value has been enabled

							–	1	2	3

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Example 4

Set value input:

					1	2	3	4	5	6

Variable Coding:

INT 8	INT 16	INT 32	BCD	ASCII
☐	☐	☐	☒	☐

Length: 3

Variable Address: MB 4 or MW 4 or MD 4

PLC entry

		MB 0 / DL 0
		MB 1 / DR 0
		MB 2 / DL 1
		MB 3 / DR 1
4	5	MB 4 / DL 2
6	0	MB 5 / DR 2
		MB 6 / DL 3
		MB 7 / DR 3
		MB 8 / DL 4

Display after set value has been enabled

								4	5	6

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Example 5

Set value input: | | | | | | 1 | 2 | 3 | 4 | 5 | 6 |

Variable Coding:

INT 8	INT 16	INT 32	BCD	ASCII
☐	☐	☐	☒	☐

Length: 8

Variable Address: MB 0 or MW 0 or MD 0

PLC entry

0	0	MB 0 / DL 0
1	2	MB 1 / DR 0
3	4	MB 2 / DL 1
5	6	MB 3 / DR 1
		MB 4 / DL 2
		MB 5 / DR 2
		MB 6 / DL 3
		MB 7 / DR 3
		MB 8 / DL 4

Display after set value has been enabled: | | | | | | 1 | 2 | 3 | 4 | 5 | 6 |

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Example 6

Set value input:

							A	B	C	D

Variable Coding:

INT 8	INT 16	INT 32	BCD	ASCII
☐	☐	☐	☐	☒

Length: 2

Variable Address: MB 6 or MW 6 or MD 6

PLC entry

	MB 0 / DL 0
	MB 1 / DR 0
	MB 2 / DL 1
	MB 3 / DR 1
	MB 4 / DL 2
	MB 5 / DR 2
'C'	MB 6 / DL 3
'D'	MB 7 / DR 3
	MB 8 / DL 4

Display after set value has been enabled

									C	D

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Example 7

Set value input: | | | | | | | | A | B | C | D |

Variable Coding: INT 8 ☐ INT 16 ☐ INT 32 ☐ BCD ☐ ASCII ☒

Length: 8

Variable Address: MB 0 or MW 0 or MD 0

PLC entry

' '	MB 0 / DL 0
' '	MB 1 / DR 0
' '	MB 2 / DL 1
' '	MB 3 / DR 1
'A'	MB 4 / DL 2
'B'	MB 5 / DR 2
'C'	MB 6 / DL 3
'D'	MB 7 / DR 3
	MB 8 / DL 4

Display after set value has been enabled | | | | | | | | A | B | C | D |

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Appendix

Technical Details

The technical details given below refer to all the display systems described in this manual.

Operating Voltage Range	18 ... 32 VDC
Rated Operating Voltage	24 VDC
Interfaces *	S5-PG Interface (passive TTY), 9-pin D-Sub connector; Pin layout: +RxD, -RxD, +TxD and -TxD; RS 232 (V24), 9-pin D-Sub connector Pin layout: TxD, RxD, CTS, RTS and earth
Text Memory *	32 KByte Flash EPROM 28F256 (EPROM 27C256) 64 KByte Flash EPROM 28F512 (from version 2.00) (EPROM 27C512)
Noise Resistance	Interruptions to supply voltage: Maximum 20 ms Electrostatic discharge: IEC 801-2/Class 3 (VDE 0843 Part 2/Class 3) Interference voltage on supply and signal lines: IEC 801-4/Class 3 (VDE 0843 Part 4/Class 3)
Operating Temperature *	0 ... +55 °C
Storage Temperature	-20 ... +70 °C
Climatic Conditions	DIN 40040 Class F
Housing and Terminal Protection	Front: IP 65 Modular fitting without sealing ring: IP 50 Modular fitting with sealing ring: IP 64 Rear: IP 20
Drop Height	80 cm (in original packing)
Vibration Resistance	5 g / 33 Hz in three levels

* The only exception is the PXT 305 COM-LC (see page 69).

PX 30 PGS5 and PXT 5 PGS5

Power Consumption	Average 4.0 W
Display	Fluorescent display, 2 lines of 20 characters, alphanumeric, IBM character set, 5 x 7 dot matrix
Character Height	5 mm
Weight	Approx. 0.7 kg

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Appendix

PX 120 PGS5 and PXT 6 PGS5

Power Consumption	Average 6.5 W
Inputs	2 in accordance with VDI 2880 page 2, 24 VDC No galvanic isolation
Display	Fluorescent display, 2 lines of 40 characters, alphanumeric, IBM character set, 5 x 12 dot matrix
Character Height	9 mm
Weight	Approx. 1.4 kg

PXT 20 PGS5

Power Consumption	Average 7.5 W
Inputs	2 + 8 in accordance with VDI 2880 page 2, 24 VDC No galvanic isolation
Outputs	8 in accordance with VDI 2880 page 2, protected against short circuit and overload, 30 mA
Display	Fluorescent display, 2 lines of 40 characters, alphanumeric, IBM character set, 5 x 12 dot matrix
Character Height	9 mm
Weight	Approx. 2.0 kg

PXT 90 PGS5

Power Consumption	Average 7.5 W
Inputs	2 + 8 in accordance with VDI 2880 page 2, 24 VDC No galvanic isolation
Outputs	8 in accordance with VDI 2880 page 2, protected against short circuit and overload, 30 mA
Display	Fluorescent display, 2 lines of 40 characters, alphanumeric, IBM character set, 5 x 12 dot matrix
Character Height	9 mm
Weight	Approx. 2.4 kg

PXT 90 PGS5

Power Consumption	Average 7.5 W
Inputs	2 + 8 in accordance with VDI 2880 page 2, 24 VDC No galvanic isolation
Outputs	8 in accordance with VDI 2880 page 2, protected against short circuit and overload, 30 mA
Display	Fluorescent display, 2 lines of 40 characters, alphanumeric, IBM character set, 5 x 12 dot matrix
Character Height	9 mm
Weight	Approx. 2.7 kg

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Appendix

PXT 208 PGS5

Power Consumption	Average 5.0 W
Inputs	8 in accordance with VDI 2880 page 2, 24 VDC No galvanic isolation
Outputs	8 in accordance with VDI 2880 page 2, protected against short circuit and overload, 30 mA
Display	Fluorescent display, 2 lines of 20 characters, alphanumeric, IBM character set, 5 x 7 dot matrix
Character Height	5 mm
Weight	Approx. 1.2 kg

PXT 216 PGS5

Power Consumption	Average 7.5 W
Inputs	2 + 8 in accordance with VDI 2880 page 2, 24 VDC No galvanic isolation
Outputs	8 in accordance with VDI 2880 page 2, protected against short circuit and overload, 30 mA
Display	Fluorescent display, 2 lines of 40 characters, alphanumeric, IBM character set, 5 x 12 dot matrix
Character Height	9 mm
Weight	Approx. 2.1 kg

PXT 305 COM-LC

Interfaces	S5-PG Interface (passive TTY) and RS 485, 9-pin D-Sub-connector RS 232 (V24), 9-pin D-Sub connector
Text Memory	64 KByte Flash-EPROM 28F512 (soldered into the unit)
Operating Temperature	0 ... +45°C
Power Consumption	Average 3.8 W
Display	LCD, 4 lines of 20 characters, limited IBM character set, 5 x 8 dot matrix
Character Height	5 mm
Weight	Approx. 0.7 kg

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Appendix

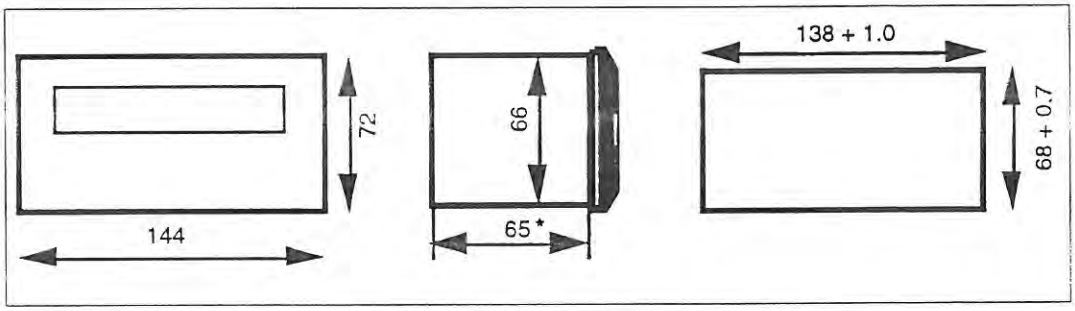
TIP 132 PGS5

Power Consumption	Average 7.5 W
Inputs	2 + 8 in accordance with VDI 2880 page 2, 24 VDC No galvanic isolation
Outputs	8 in accordance with VDI 2880 page 2, protected against short circuit and overload, 30 mA
Display	Fluorescent display, 2 lines of 40 characters, alphanumeric, IBM character set, 5 x 12 dot matrix
Character Height	9 mm
Weight	Approx. 13.7 kg

Dimensions (in mm)

PX 30 PGS5 and PXT 5 PGS5

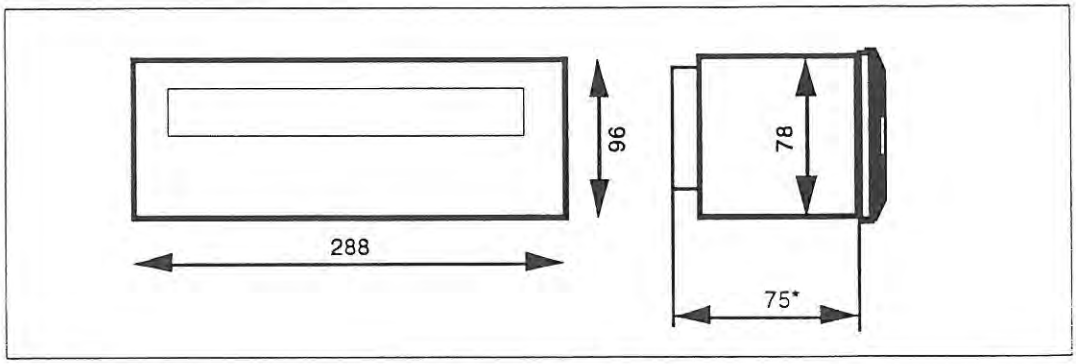
Nominal and Cut-Out Dimensions



* Allow extra for SUB-D Connector!

PX 120 PGS5 and PXT 6 PGS5

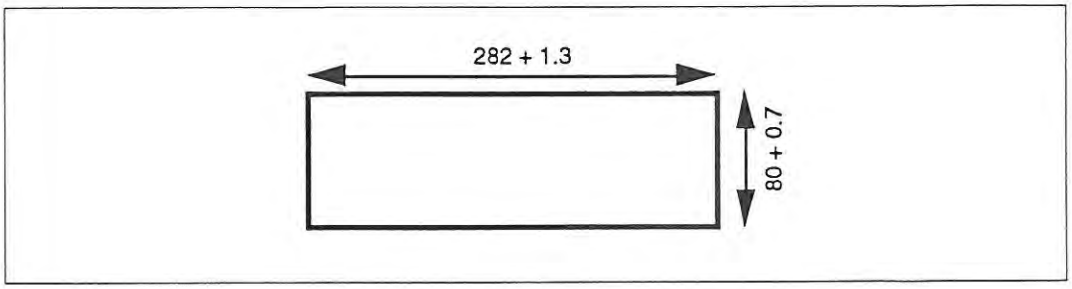
Nominal Dimensions



* Depth with screw-type connector; allow extra for Sub-D Connector!

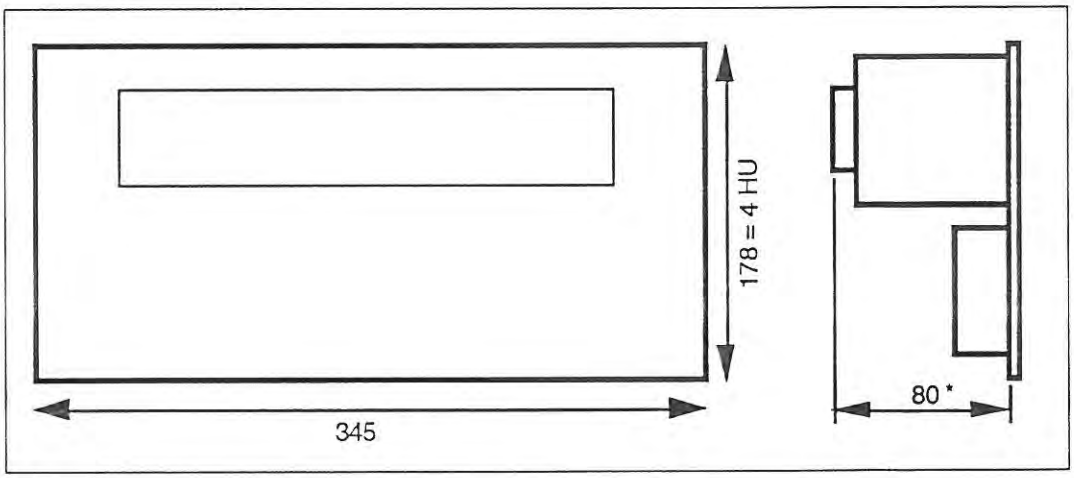
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Cut-Out Dimensions



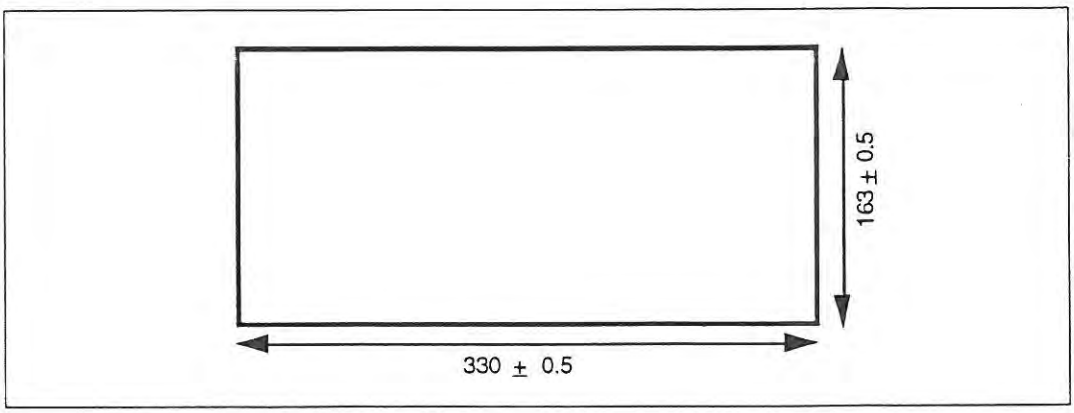
PXT 20 PGS5

Nominal Dimensions



* Depth with screw-type connector; allow extra for SUB-D Connector!

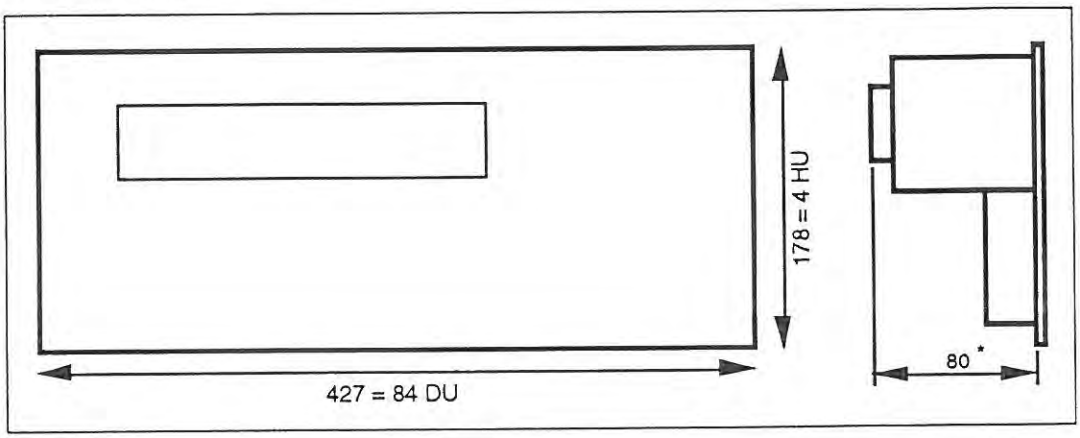
Cut-Out Dimensions



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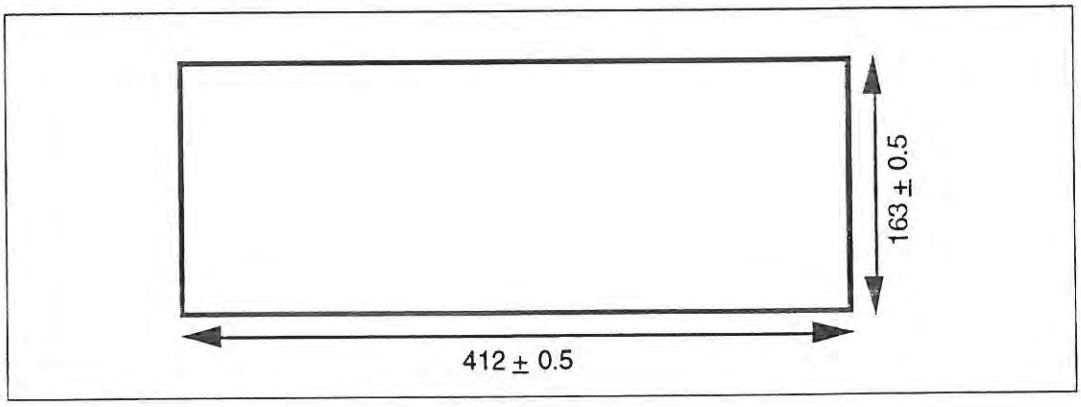
PXT 90 PGS5

Nominal Dimensions



* Depth with screw-type connector; allow extra for SUB-D Connector!

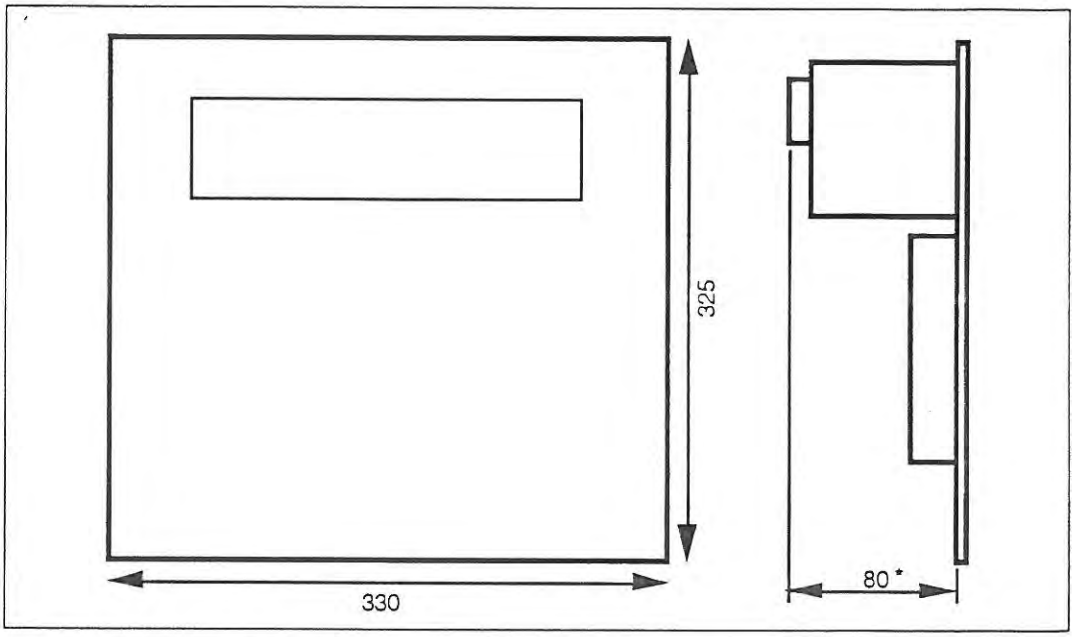
Cut-Out Dimensions



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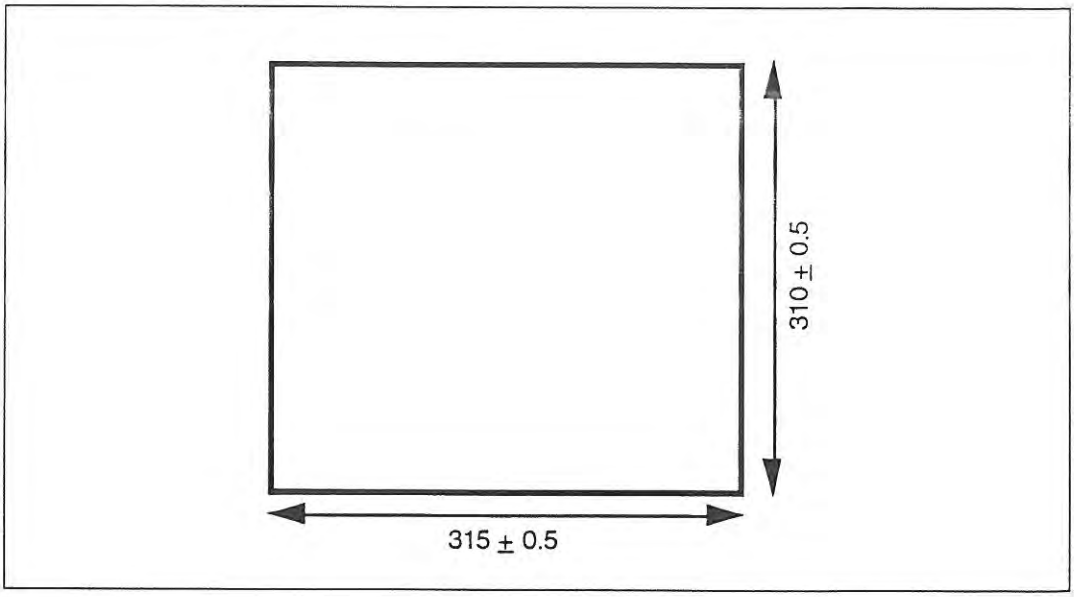
PXT 132 PGS5

Nominal Dimensions



* Depth with screw-type connector; allow extra for SUB-D Connector!

Cut-Out Dimensions

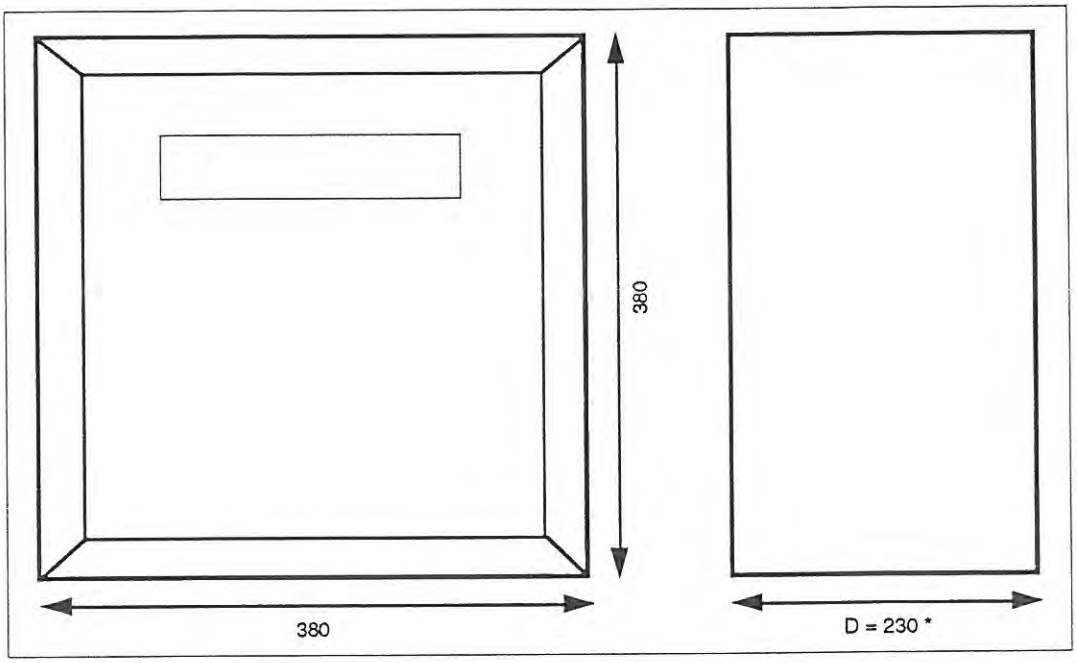


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Appendix

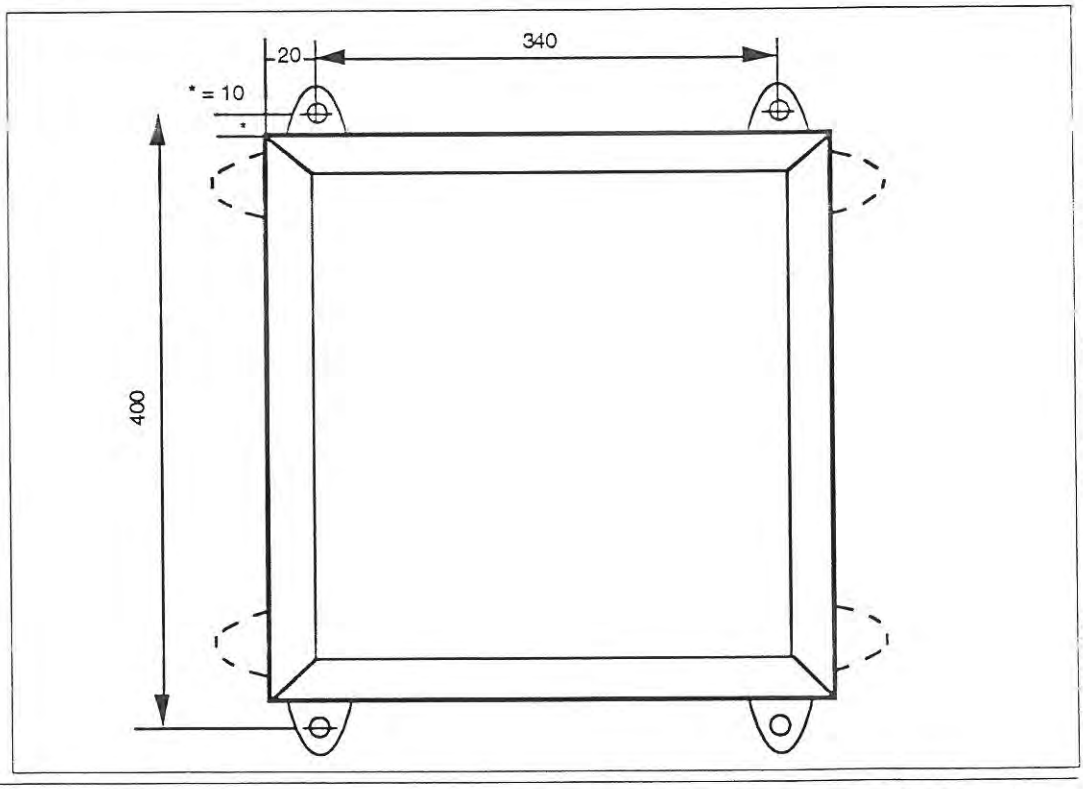
TIP 132 PGS5

Nominal Dimensions



* + 8 mm when wall-mounted!

Cut-Out Dimensions

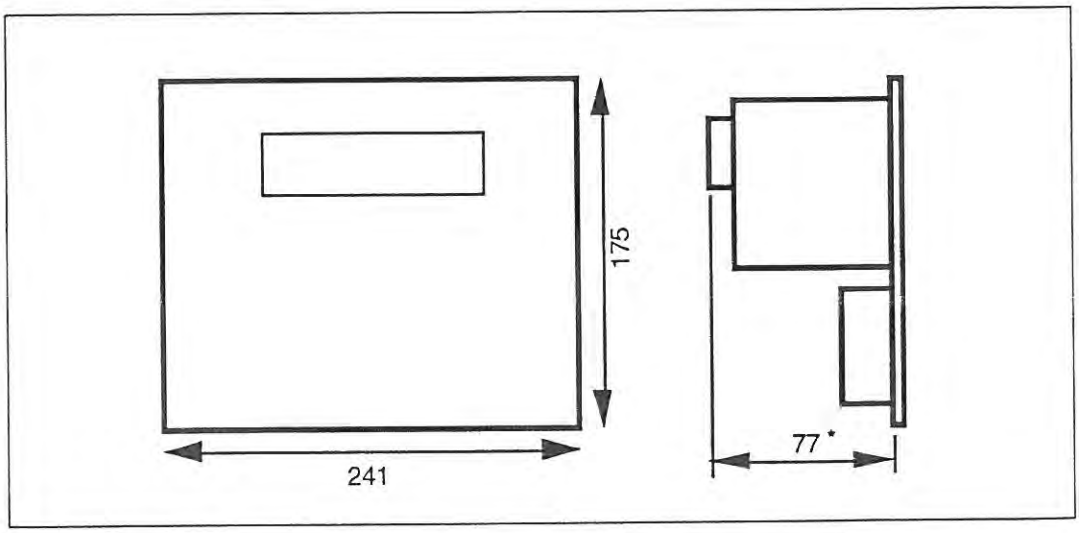


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Appendix

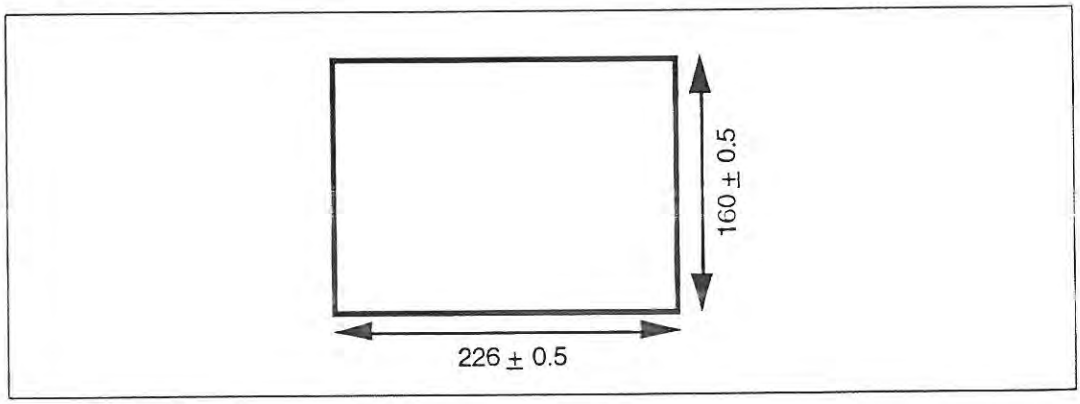
PXT 208 PGS5

Nominal Dimensions



* Depth with screw-type connector; allow extra for SUB-D Connector!

Cut-Out Dimensions

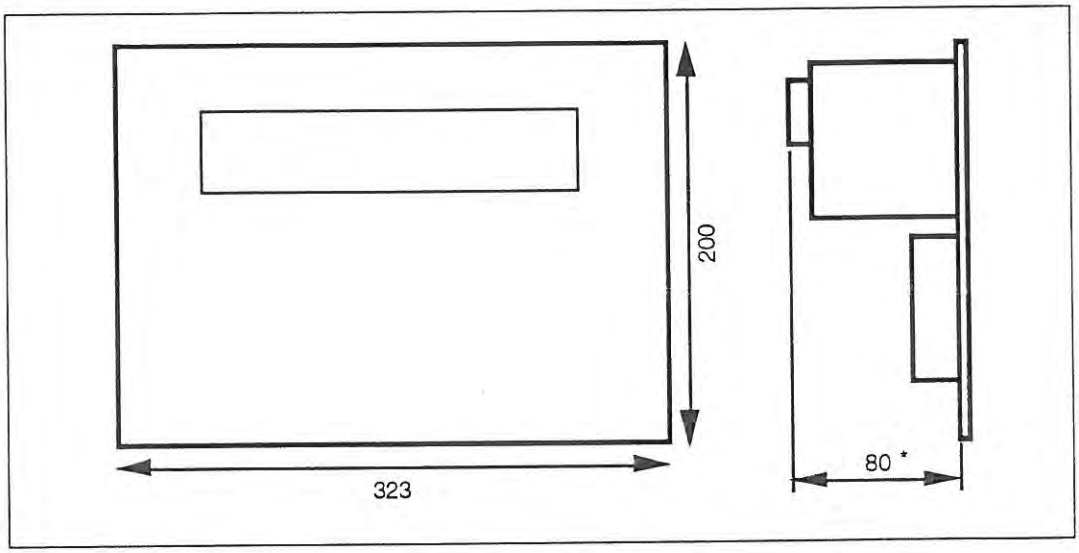


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Appendix

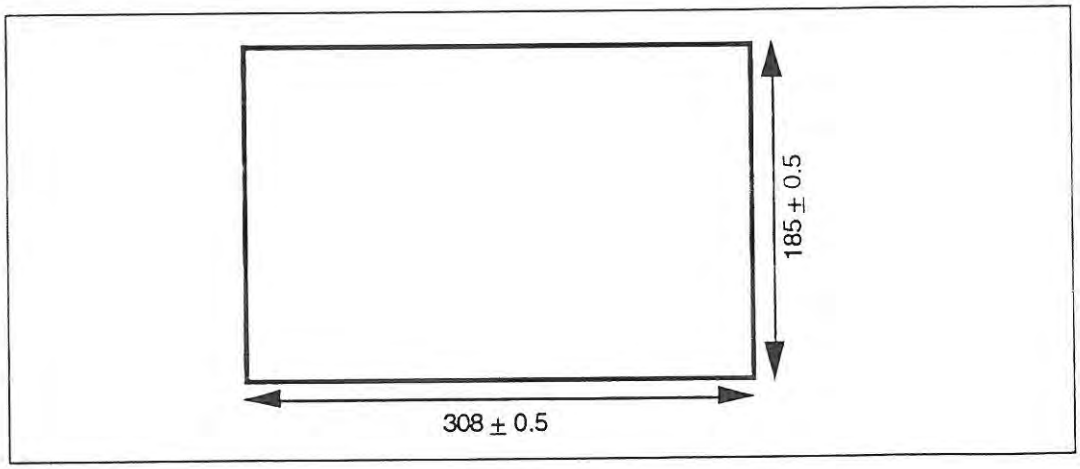
PXT 216 PGS5

Nominal Dimensions



* Depth with screw-type connector; allow extra for SUB-D Connector!

Cut-Out Dimensions

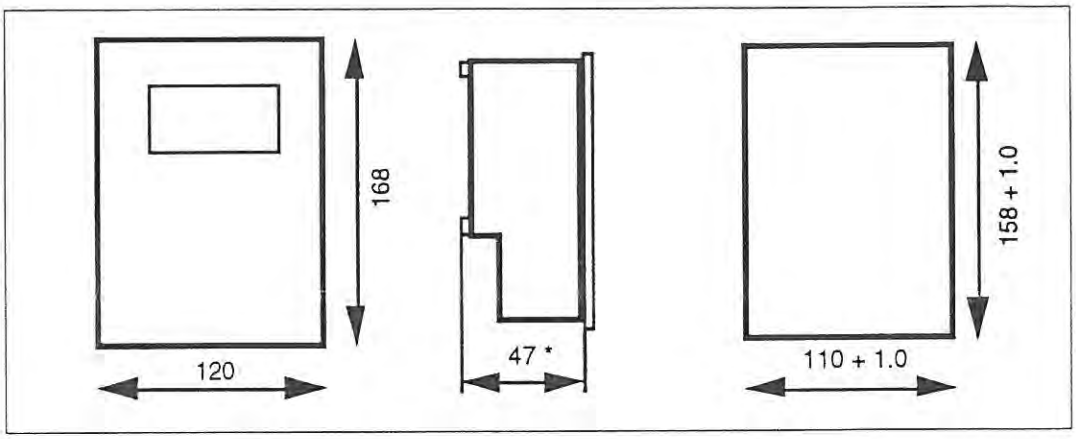


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Appendix

PXT 305 COM-LC

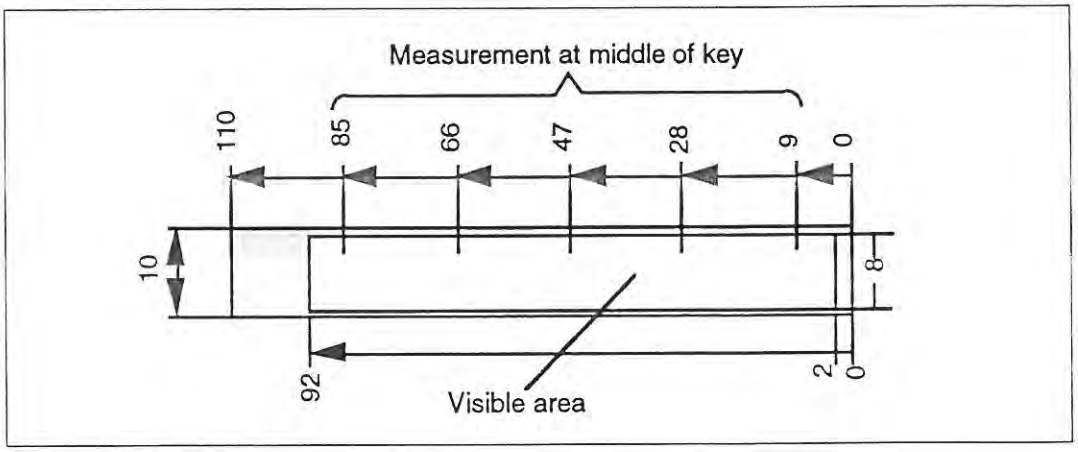
Nominal Dimensions **Cut-Out**



* Depth with screw-type connector; allow extra for SUB-D Connector!

Labelling Strips for the Function Keys on the PXT 305 COM-LC

- Recommended material: Océ Permanent Film
- All labelling strips for PXT display systems are available as **Word for Windows** files (6.00).



Character Sets

IBM Character Set

The character set on the display system corresponds to the extended ASCII character set from IBM. The character 255 decimal (FF_H) is used to identify an empty text memory.

Characters from the IBM character set that can be represented are 32 to 254 decimal (20_H to FE_H); one exception is the character 35_D (#) which is reserved as a variable marker (see diagram overleaf).

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Appendix



32		64	@	96	`	128	Ç	160	á	192	└	224	α
33	!	65	A	97	a	129	ü	161	í	193	┴	225	ß
34	"	66	B	98	b	130	é	162	ó	194	┬	226	Γ
35	#	67	C	99	c	131	â	163	ú	195	├	227	π
36	$	68	D	100	d	132	ä	164	ñ	196	─	228	Σ
37	%	69	E	101	e	133	à	165	Ñ	197	┼	229	σ
38	&	70	F	102	f	134	å	166	ª	198	╞	230	µ
39	'	71	G	103	g	135	ç	167	º	199	╟	231	τ
40	(	72	H	104	h	136	ê	168	¿	200	╚	232	Φ
41	)	73	I	105	i	137	ë	169	⌐	201	╔	233	Θ
42	*	74	J	106	j	138	è	170	¬	202	╩	234	Ω
43	+	75	K	107	k	139	ï	171	½	203	╦	235	δ
44	,	76	L	108	l	140	î	172	¼	204	╠	236	∞
45	-	77	M	109	m	141	ì	173	¡	205	═	237	∅
46	.	78	N	110	n	142	Ä	174	«	206	╬	238	ε
47	/	79	O	111	o	143	Å	175	»	207	╧	239	∩
48	0	80	P	112	p	144	É	176	▒	208	╨	240	≡
49	1	81	Q	113	q	145	æ	177	▒	209	╤	241	±
50	2	82	R	114	r	146	Æ	178	▒	210	╥	242	≥
51	3	83	S	115	s	147	ô	179	│	211	╙	243	≤
52	4	84	T	116	t	148	ö	180	┤	212	╘	244	⌠
53	5	85	U	117	u	149	ò	181	╡	213	╒	245	⌡
54	6	86	V	118	v	150	û	182	╢	214	╓	246	÷
55	7	87	W	119	w	151	ù	183	╖	215	╫	247	≈
56	8	88	X	120	x	152	ÿ	184	╕	216	╪	248	°
57	9	89	Y	121	y	153	Ö	185	╣	217	┘	249	∙
58	:	90	Z	122	z	154	Ü	186	║	218	┌	250	·
59	;	91	[	123	{	155	¢	187	╗	219	█	251	√
60	<	92	\	124	¦	156	£	188	╝	220	▄	252	n
61	=	93	]	125	}	157	¥	189	╜	221	▌	253	z
62	>	94	^	126	~	158	₧	190	╛	222	▐	254	■
63	?	95	_	127	⌂	159	ƒ	191	┐	223	▀		

Limited IBM Character Set on the PXT 305 COM-LC

Characters 32_D to 126_D correspond exactly to the relevant section of the IBM character set, with the exception of 92_D.
From 127_D onwards, the IBM characters available are limited (see table overleaf).
The characters shown in boxes are those that deviate from the IBM-set.
Of the shaded characters, a maximum of 8 per text are available at one time.

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Appendix

Please note: The unit appears to operate with the complete IBM character set:

- Because the PXT 305 COM-LC character set contains almost all the national / international special characters found in the IBM set, **AND**
- As long as you do not wish to use more than 8 of the "shaded" characters at any one time within a text.

32		64	@	96	'	128	Ç	160	á	192		224	α		
33	!	65	A	97	a	129	ü	161	í	193		225	β		
34	"	66	B	98	b	130	é	162	ó	194		226			
35	#	67	C	99	c	131	â	163	ú	195		227	π		
36	$	68	D	100	d	132	ä	164	ñ	196		228	Σ		
37	%	69	E	101	e	133	à	165	Ñ	197		229			
38	&	70	F	102	f	134	å	166	ª	198		230	µ		
39	'	71	G	103	g	135	ç	167	º	199		231			
40	(	72	H	104	h	136	ê	168	¿	200		232			
41	)	73	I	105	i	137	ë	169		201		233	θ		
42	*	74	J	106	j	138	è	170		202		234	Ω		
43	+	75	K	107	k	139	ï	171		203		235			
44	,	76	L	108	l	140	î	172		204		236			
45	-	77	M	109	m	141	ì	173	¡	205		237			
46	.	78	N	110	n	142	Ä	174	«	206		238	∈		
47	/	79	O	111	o	143	Å	175	»	207		239			
48	0	80	P	112	p	144	É	176		208		240			
49	1	81	Q	113	q	145	æ	177		209		241	±		
50	2	82	R	114	r	146	Æ	178		210		242	≥		
51	3	83	S	115	s	147	ô	179		211		243	≤		
52	4	84	T	116	t	148	ö	180		212		244	⌠		
53	5	85	U	117	u	149	ò	181		213		245	⌡		
54	6	86	V	118	v	150	û	182		214		246	÷		
55	7	87	W	119	w	151	ù	183		215		247			
56	8	88	X	120	x	152	ÿ	184		216		248	°		
57	9	89	Y	121	y	153	Ö	185		217		249			
58	:	90	Z	122	z	154	Ü	186		218		250	·		
59	;	91	[	123	{	155	¢	187		219		251	√		
60	<	92	¥	124	|	156		188		220		252			
61	=	93	]	125	}	157	¥	189		221		253			
62	>	94	^	126	~	158	₧	190		222		254	■		
63	?	95	_	127		159		191		223		255			

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Appendix

Cyrillic Character Set (not available on the PXT 305 COM-LC)

When the Cyrillic character set is used, the IBM-characters in the range 40_H to $7A_H$ (64 to 122 decimal) are replaced by the characters contained within the square highlighted in the diagram below (under ADIT DOS default setting CH = 98).

Hexadecimal	(higher value)	4	5	6	7
(lower value)	Binary	0100	0101	0110	0111
0	0000	@ Ю	P П	' Ь	p Р
1	0001	A А	Q Я	a А	q Q
2	0010	B Б	R Р	b В	r R
3	0011	C Ц	S С	c С	s S
4	0100	D Д	T Т	d D	t Т
5	0101	E Е	U У	e Е	u U
6	0110	F Ф	V Ж	f Ғ	v V
7	0111	G Г	W В	g G	w W
8	1000	H Х	X Ь	h Н	x X
9	1001	I И	Y Ы	i І	y Y
A	1010	J Й	Z З	j Ј	z Z
B	1011	K К	[Ш	k К	{
C	1100	L Л	\ Э	l Ӏ	|
D	1101	M М	] Щ	m М	}
E	1110	N Н	^ Ч	n Ң	~
F	1111	O О	_	o Ө	

Loadable Special Character Set (from unit version no. 2.06; not available on the PXT 305 COM-LC)

A text number can be entered in the ADIT DOS default settings, to mark the spot from which pixel codes for a special character set are stored. This could be for a character set available within the display or for one created by yourself.
The first text will contain the pixel code for the special character at the ASCII-position 20_H (32 decimal). The next text will be assigned to ASCII character 21_H (33 decimal). The pixel codes for all special characters up to ASCII FF_H (255 decimal) must then be stored in the texts that follow.

The pixel codes consist of either 5 or 8 hexadecimal digits per special character:

- 5 hex-digits stand for 5 bytes on a display with 5 x 7 dot matrix
- 8 hex-digits stand for 8 bytes on a display with 5 x 12 dot matrix.

Please refer to the Technical Details section for information on your particular display.
No other character may be edited next to the pixel code within the text.
The ASCII character 23H / 35 decimal (#) is reserved as a variable marker. Any special character in this position will not be visible on the display!

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The configuration command for loading special character sets is:

$C:xxxx

xxxx The first text number in the text memory for the pixel code of a special character set (enter **8032** for the special character sets supplied by Pilz).

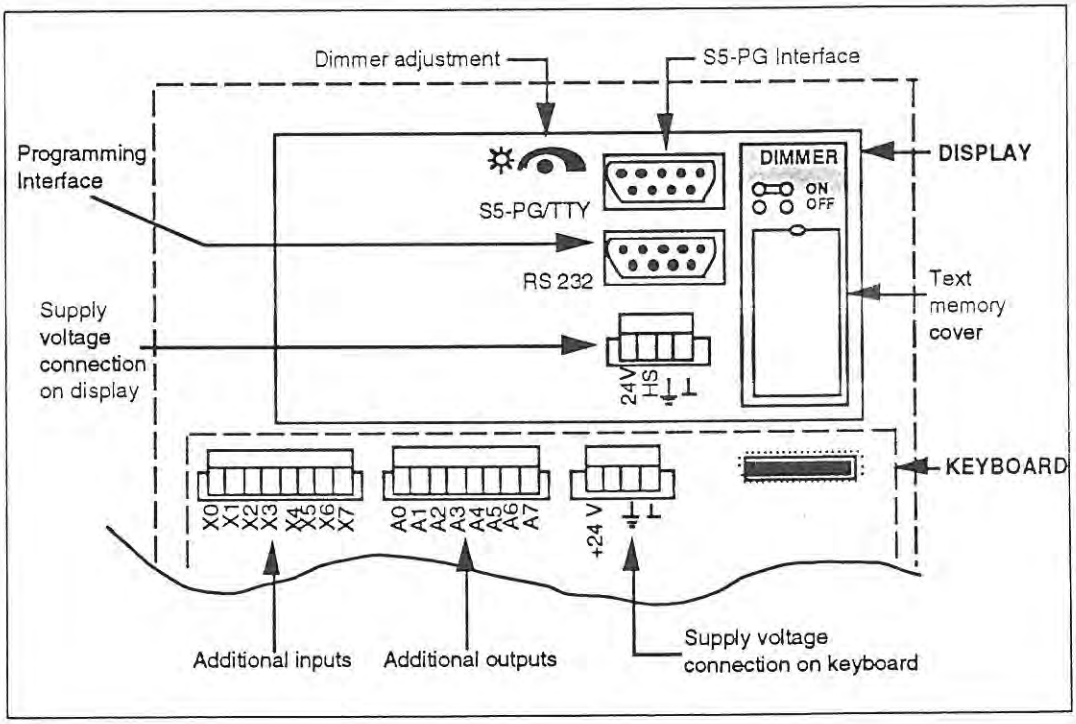
The $C-command must be entered in the ADIT DOS default settings, under "Max. 40 additional characters".

Warning! The $C-command is only carried out if the Cyrillic character set has not been configured in the default settings under "Character Set", or with the $M-command.

Rear View

PX 30 PGS5-Based Display Systems

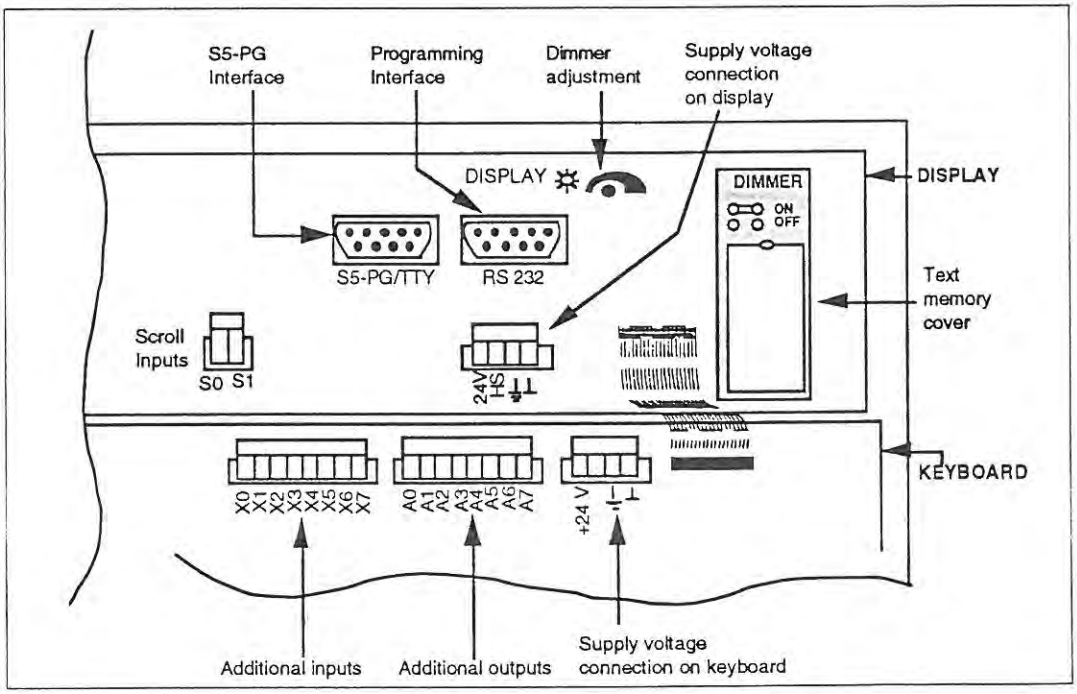
- PX 30 PGS5 (no keyboard)
- PXT 5 PGS5 (no keyboard)
- PXT 208 PGS5



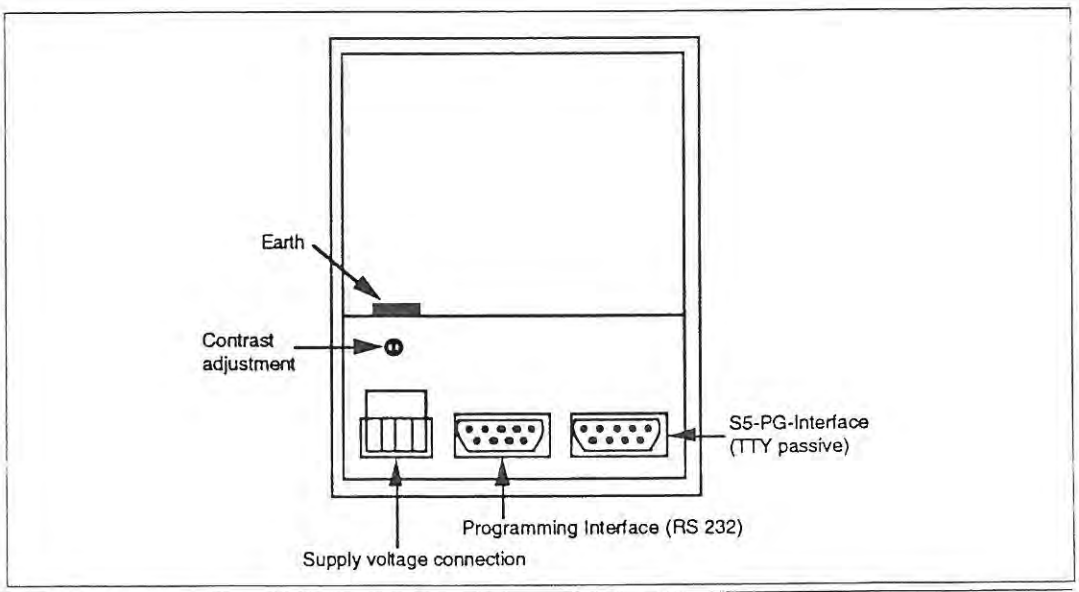
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PX 120 PGS5-Based Display Systems

- PX 120 PGS5 (no keyboard)
- PXT 6 PGS5 (no keyboard)
- PXT 20 PGS5
- PXT 90 PGS5
- PXT 132 PGS5 / TIP 132 PGS5
- PXT 216 PGS5



PXT 305 COM-LC



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Appendix

Key Codes

PXT 5 PGS5 / PXT 6 PGS5

Function Keys

Key	F1	F2	F3	F4	F5	F6
Code	41_H	42_H	43_H	44_H	45_H	46_H

PXT 20 PGS5

Function Keys

Key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Code	41_H	42_H	43_H	44_H	45_H	46_H	47_H	48_H	49_H	$4A_H$
Key	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20
Code	$4B_H$	$4C_H$	$4D_H$	$4E_H$	$4F_H$	50_H	51_H	52_H	53_H	54_H

PXT 90 PGS5

Alphanumeric and Special Keys

Key		No.	SHIFT off/on ALPHA off	SHIFT off ALPHA on	SHIFT on ALPHA on
?	A	01	$3F_H$ (?)	61_H (a)	41_H (A)
	B	02	23_H (#)	62_H (b)	42_H (B)
7	C	03	37_H (7)	63_H (c)	43_H (C)
8	D	04	38_H (8)	64_H (d)	44_H (D)
9	E	05	39_H (9)	65_H (e)	45_H (E)
⇑	F	06	$1E_H$ (▲)	66_H (f)	46_H (F)
NEXT	G	07	$1D_H$ (↕)	67_H (g)	47_H (G)
4	H	08	34_H (4)	68_H (h)	48_H (H)
5	I	09	35_H (5)	69_H (i)	49_H (I)
6	J	10	36_H (6)	$6A_H$ (j)	$4A_H$ (J)
⇓	K	11	$1F_H$ (▼)	$6B_H$ (k)	$4B_H$ (K)
QUIT	L	12	17_H (↕)	$6C_H$ (l)	$4C_H$ (L)
1	M	13	31_H (1)	$6D_H$ (m)	$4D_H$ (M)

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Key		No.	SHIFT off/on ALPHA off	SHIFT off ALPHA on	SHIFT on ALPHA on
2	N	14	32_H (2)	$6E_H$ (n)	$4E_H$ (N)
3	O	15	33_H (3)	$6F_H$ (o)	$4F_H$ (O)
	P	16	$1C_H$ ( )	70_H (p)	50_H (P)
	Q	17	16_H ( )	71_H (q)	51_H (Q)
_	R	18	$2E_H$ (.)	72_H (r)	52_H (R)
0	S	19	30_H (0)	73_H (s)	53_H (S)
.	T	20	$2C_H$ (,)	74_H (t)	54_H (T)
	U	21	$2A_H$ (*)	75_H (u)	55_H (U)
	V	22	21_H (!)	76_H (v)	56_H (V)
^	W	23	18_H (↑)	77_H (w)	57_H (W)
<	X	24	$1B_H$ (←)	78_H (x)	58_H (X)
v	Y	25	$1A_H$ (→)	79_H (y)	59_H (Y)
(Cursor home)		26	22_H (")	22_H (")	22_H (")
END		27	40_H (@)	40_H (@)	40_H (@)
>	Z	28	19_H (↓)	$7A_H$ (z)	$5A_H$ (Z)
SHIFT		29	29_H	29_H	29_H
ALPHA		30	30_H	30_H	30_H
SPACE		31	20_H ( )	20_H ( )	20_H ( )
ENTER		32	$0D_H$ ( )	$0D_H$ ( )	$0D_H$ ( )

Function Keys

Key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Code	01_H	02_H	03_H	04_H	05_H	26_H	07_H	08_H	09_H	$0A_H$
Key	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20
Code	$0B_H$	$0C_H$	$3D_H$	$0E_H$	$0F_H$	10_H	11_H	12_H	13_H	14_H

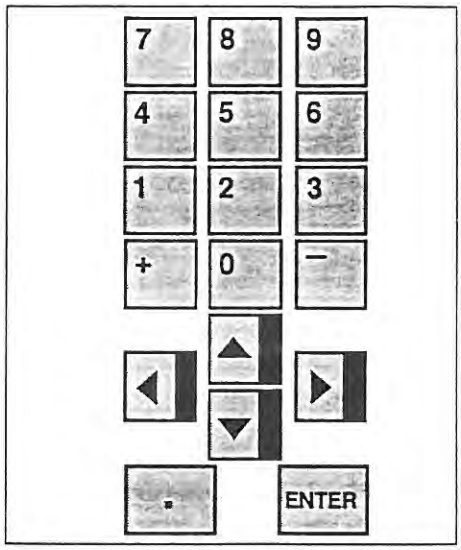
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Appendix

PXT 132 PGS5 and TIP 132 PGS5

Alphanumeric and Special Keys

Key	Code	Key	Code	Key	Code
1	31_H	2	32_H	3	33_H
4	34_H	5	35_H	6	36_H
7	37_H	8	38_H	9	39_H
0	30_H	+	$2B_H$	-	$2D_H$
↑	18_H	↓	19_H	←	$1B_H$
→	$1A_H$	•	$2E_H$	ENTER	$0D_H$



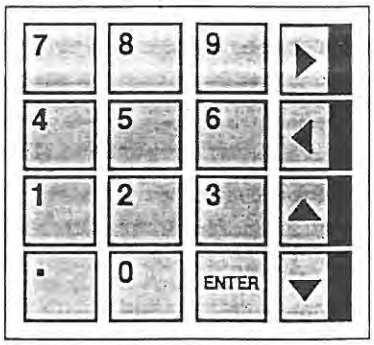
Function Keys

Key	F1	F2	F3	F4	F5	F6	F7	F8
Code	41_H	42_H	43_H	44_H	45_H	46_H	47_H	48_H
Key	F9	F10	F11	F12	F13	F14	F15	F16
Code	49_H	$4A_H$	$4B_H$	$4C_H$	$4D_H$	$4E_H$	$4F_H$	50_H
Key	F17	F18	F19	F20	F21	F22	F23	F24
Code	51_H	52_H	53_H	54_H	61_H	62_H	63_H	64_H
Key	F25	F26	F27	F28	F29	F30	F31	F32
Code	65_H	66_H	67_H	68_H	69_H	$6A_H$	$6B_H$	$6C_H$

PXT 208 PGS5

Alphanumeric and Special Keys

Key	Code	Key	Code	Key	Code	Key	Code
7	37_H	8	38_H	9	39_H	→	$1A_H$
4	34_H	5	35_H	6	36_H	←	$1B_H$
1	31_H	2	32_H	3	33_H	↑	18_H
•	$2E_H$	0	30_H	ENTER	$0D_H$	↓	19_H



Function Keys

Key	F1	F2	F3	F4	F5	F6	F7	F8
Code	41_H	42_H	43_H	44_H	45_H	46_H	47_H	48_H

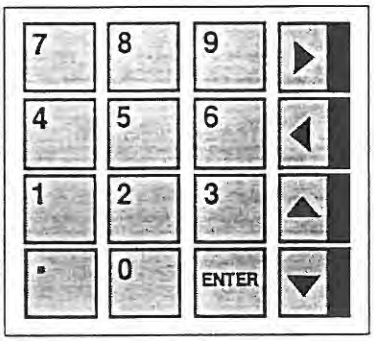
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Appendix

PXT 216 PGS5

Alphanumeric and Special Keys

Key	Code	Key	Code	Key	Code	Key	Code
7	37_H	8	38_H	9	39_H	→	$1A_H$
4	34_H	5	35_H	6	36_H	←	$1B_H$
1	31_H	2	32_H	3	33_H	↑	18_H
•	$2E_H$	0	30_H	ENTER	$0D_H$	↓	19_H



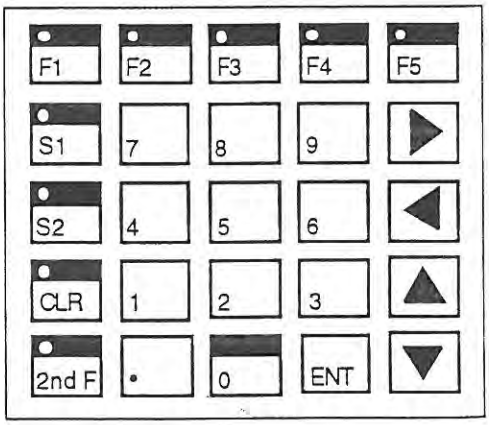
Function Keys

Key	F1	F2	F3	F4	F5	F6	F7	F8
Code	41_H	42_H	43_H	44_H	45_H	46_H	47_H	48_H
Key	F9	F10	F11	F12	F13	F14	F15	F16
Code	49_H	$4A_H$	$4B_H$	$4C_H$	$4D_H$	$4E_H$	$4F_H$	50_H

PXT 305 COM-LC

Numeric and Special Keys

Key	Code	Key	Code	Key	Code
S1	53_H	7	37_H	9	39_H
S3	55_H	4	34_H	6	36_H
S2	54_H	1	31_H	3	33_H
S4	56_H	.	$2E_H$	ENTER	$0D_H$
CLR	23_H	8	38_H	→	$1A_H$
ESC	03_H	5	35_H	←	$1B_H$
2nd F	01_H on 02_H off	2	32_H	↑	18_H
-	$2D_H$	0	30_H	↓	19_H



Function Keys

Key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Code	41_H	42_H	43_H	44_H	45_H	46_H	47_H	48_H	49_H	$4A_H$

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Appendix

Valid Addresses for Utilities

Utility	Valid Addresses (See page 91 for key)
Text	EB, EW, AB, AW, MB, MW, DL, DR, DW
Variable	EB, EW, ED, AB, AW, AD, MB, MW, MD, DL, DR, DW, DD
Variable Attribute	EB, AB, MB, DL, DR
Special Utilities	EB, AB, MB, DL, DR
Function Keys	E, EB, EW, ED, A, AB, AW, AD, M, MB, MW, MD, D, DL, DR, DW, DD
Alphanumeric Keys	EB, AB, MB, DL, DR
LED	E, EB, EW, ED, A, AB, AW, AD, M, MB, MW, MD, DL, DR, DW, DD

Error Codes

Error Code	Meaning
010	Syntax error in configuration instruction
030	No text available; record is not occupied
031	No text available; record is outside the edited text number range
035	Text number is outside the text memory address range (>9999)
040	Too many BCD-digits; maximum permitted number of transmission cycles has been exceeded OR Syntax error when entering MIN / MAX / MUL / OFF
041	BCD-digit(s) > 9 were found in the text selection
042	Binary value too large
044	Negative text number selected
050	Variable marker has no variable (control character) edited
051	Variable (control character) edited without a marker
052	Too many variable markers # (>11)
080	Special function code invalid
081	No variable value in telegram (with RS 232 drive)
082	No text number in telegram (with RS 232 drive)
100	Invalid monitor command
120	PLC addresses missing
121	PLC data for invalid utility
122	PLC data records doubled
123	Invalid PLC address
124	No PLC connection

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Error Code	Meaning
125	PLC data contains invalid text number (>9 999)
126	Invalid variable coding
127	Invalid variable length
128	Invalid variable number
129	Too much PLC data in text memory
130	Invalid LED number or number of LEDs
131	Invalid LED-Offset
132	Invalid function key number or number of function keys
140	PLC in STOP-mode
141	Error in set value addressing
160	First text number for the pixel code on the special character set has not been found
161	Incomplete pixel code for the special character set
170	Timeout on the RS 232 interface
200	Clearing error (when programming Flash-EPROMs)
201	ID-code error (when programming Flash-EPROMs)
202	Write error (when programming Flash-EPROMs)
203	Text memory too small (when programming Flash-EPROMs)

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Appendix

Error Messages

In ADIT DOS, a text number can be entered to indicate the start of the text memory range for error messages. Any texts stored from this text number onwards will be assigned error codes (error numbers) directly, ie. the first text in the range will be assigned error code 000 (ERROR 000), the next will be assigned error code 001 (ERROR 001) etc.

The error message memory range may contain 256 records (including empty records for error codes that are not used). If the value of the first text number for error messages lies between 0001 and 9744, the allocated text will be displayed instead of the ERROR-Code.

Please note:

- Enter 9000 as the first text number for the error message (ERR20_UK/ERR40_UK) files.
- If you wish to use a different number as the first text number, you must take into account the number of the last text edited. When setting up the error message memory range, we recommend you select the next unused 100- or 1000- number.

  For example, if you establish 1000 as the number at which to start the error messages, the error message for the corresponding error code should be edited in the record with the text number: (1000 + error number). Alternatively, the ERR20_UK/ERR40_UK files (starting at text number 9000) could be moved to this text number using the Editor Function BLOCK: B-MOVE (move block).

If no error message has been edited, the message "ERROR xxx" (xxx ... error code) will be displayed.

The first text number in the text memory range to be set aside for error messages should be entered in the ADIT DOS default settings.

System Messages

• On power-up:	Unit description, including version number, or any text configured by the user.
• When programming your Flash-EPROM:	"Flash-EPROM" flashes. This message disappears when the next action is taken (eg. text call-up, error message).
• When errors occur:	"ERROR xxx" flashes (xxx ... error code), or the configured error message.

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Appendix

Overview of Configuration Instructions ($-Instructions)

Loadable Special Character Set

$C:xxxx **xxxx** The first text number in the text memory for the pixel code of the special character set

By-passing the Keyboard, 8-Bit Code for Function Keys and Password

$H:x/y</zzzzzz>

x = 1	8-bit key-code is used internally
x = 0	8-bit key-code is not used internally
y = 1	Function keys supply 8-bit code
y = 0	Function keys do not supply 8-bit code
zzzzzz	Password for entering set values (1 to 6 characters); If you use less than 6 characters, fill up the remainder with spaces.

Please note: A password will be recognized as valid, even if if just the second slash ("/") has been entered in the $H-instruction.

Function Keys for [-], [+] and CLEAR

$J:xx/yy/zz

xx = Function key number for [-]-key
yy = Function key number for [+]-key
zz = Function key number for CLEAR-key
(Enter 00 if you do not wish to replace the key function).

CTS Evaluation

$N:1	CTS signal evaluated on your connected printer
$N:0	CTS signal not evaluated

Hardcopy Format

$Q:x/y

x = 0 **Multi-line hardcopy** in display format, including background text
(y is not evaluated; its value is insignificant!)

x = 1	**Single-line hardcopy**
y = 0	With 2 x 20 characters: lines displayed are printed; With 4 x 20 characters: the first two lines are printed.
y = 1	With 2 x 40 characters: 1st line of display is printed; With 4 x 20 characters: the first two lines are printed.
y = 2	With 2 x 40 or 4 x 20 characters: lines displayed are printed.

Scroll Speed

$R:x x = 1 ... 9 seconds

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Appendix

Key to Addresses

The following table explains the abbreviations used in this manual to describe the different type of addresses.

Abbr.	Key
A	Output Bit
AB	Output Byte
AW	Output Word
AD	Output Double Word
D	Data Bit
DL	Data Left
DR	Data Right
DW	Data Word
DD	Data Double Word
DB	Data Block
E	Input Bit
EB	Input Byte
EW	Input Word
ED	Input Double Word
M	Flag Bit
MB	Flag Byte
MW	Flag Word
MD	Flag Double Word

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Addendum

Notes on Operation

- After power-up, a valid value (text number of an available text) must be entered under the PLC address for which parameters have been set.
  This is necessary if LED-data and function key information is to be transmitted accurately.

- The information below is important when using the following S5-CPUs:

S5-115U with CPU 945

a) The connection between the PLC and PX(T)-unit must not be broken during operation.

b) Supply voltages to the PLC and PX(T)-unit must be switched on and off simultaneously.

c) If you are operating a PX(T) on one of the interfaces on the CPU 945, you will only be able to use the other interface for transmitting blocks in a limited capacity.

d) Inputs that are not available cannot have parameters set as PLC-addresses, as they will be overwritten with zero by the input process I/O-image.

S5-135U with CPU 928 and 928B

a) On these CPUs, it is not normally possible to drive data byte addresses (DL, DR) from the PG. This means that the whole data word will always be written, even through the PX(T). The byte that isn't required (DL or DR) will be lost to the user. It is set at zero.

b) On the CPU 928B, if both interfaces are being used (with a PX(T) and a PG, or with two PX(T)s), both interfaces will crash if you try to display block status. This can also occur when displaying the status of variables. This happens because the PLC interfaces are overloaded and the PLC crashes.

Remedy: Reset the CPU and reload the program.

Important: Make sure the CPU is not connected to the PX(T) while the program is being loaded.

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