
4B1260.00-390

User's Manual

Version: **1.10 (March 2007)**

Model number: -

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Chapter 1 • General information

1 Manual history

Version	Date	Change
1.00	4/23/2004	- First edition
1.10	3/14/2007	- Formatting - Update: "General information" chapter - Update: Mounting instructions - Overview of commands

Table 1: Manual history

2 Safety notices

2.1 Intended use

Programmable logic controllers (PLCs), operating and monitoring devices (industrial PCs, Power Panels, Mobile Panels, etc.), and uninterruptible power supplies are designed, developed, and manufactured for conventional use in industrial applications. They were not designed, developed, and manufactured for any use involving serious risks or hazards that could lead to death, injury, serious physical damage, or loss of any kind without the implementation of exceptionally stringent safety precautions. In particular, such risks and hazards include the use of these devices to monitor nuclear reactions in nuclear power plants, as well as flight control systems, flight safety, the control of mass transit systems, medical life support systems, and the control of weapons systems.

2.2 Protection against electrostatic discharges

Electrical components that are vulnerable to electrostatic discharge (ESD) must be handled accordingly.

2.2.1 Packaging

- Electrical components with housing
... Do not require special ESD packaging, but must be handled properly.
(See "Electrical components with housing".)
- Electrical components without housing
... Are protected by ESD-suitable packaging.

2.2.2 Guidelines for proper ESD handling

Electrical components with housing

- Do not touch the contacts of connectors on connected cables.
- Do not touch the contact tips on the circuit boards.

Electrical components without housing

In addition to "Electrical components with housing", the following also applies:

- Any persons handling electrical components or devices that will be installed in the electrical components must be grounded.
- Components can only be touched on the small sides or on the front plate.
- Components should always be stored in a suitable medium (ESD packaging, conductive foam, etc.).
Metallic surfaces are not suitable storage surfaces!

General information • Safety notices

- Electrostatic discharges should be avoided on the components (e.g. through charged plastics).
- A minimum distance of 10 cm must be kept from monitors and TV sets.
- Measurement devices and equipment must be grounded.
- Measurement probes on potential-free measurement devices must be discharged on sufficiently grounded surfaces before taking measurements.

Individual components

- ESD protective measures for individual components are thoroughly integrated at B&R (conductive floors, footwear, arm bands, etc.).

The increased ESD protective measures for individual components are not necessary for our customers for handling B&R products.

2.3 Policy and procedures

Electronic devices are generally not failsafe. In the event of a failure on the programmable control system, operating or monitoring device, or uninterruptible power supply, the user is responsible for ensuring that other devices that may be connected, e.g. motors, are in a secure state.

Both when using programmable logic controllers and when using operating and monitoring devices as control systems in conjunction with a soft PLC (e.g. B&R Automation Runtime or comparable products) or a slot PLC (e.g. B&R LS251 or comparable products), the safety precautions applying to industrial control systems (e.g. the provision of safety devices such as emergency stop circuits, etc.) must be observed in accordance with applicable national and international regulations. The same applies for all other devices connected to the system, such as drives.

Only qualified personnel may perform tasks such as installation, commissioning, and maintenance. Qualified personnel are persons who are familiar with the transport, mounting, installation, commissioning, and operation of the product and who have the appropriate qualifications (e.g. IEC 60364). National accident prevention guidelines must be followed. The safety guidelines, connection descriptions (type plate and documentation), and limit values listed in the technical data are to be read carefully before installation and commissioning and must be observed.

2.4 Transport and storage

During transport and storage, devices must be protected from excessive stress (mechanical load, temperature, humidity, aggressive atmosphere, etc.).

2.5 Assembly

- Installation must take place according to the documentation, using suitable equipment and tools.
- Devices may only be installed without voltage applied and by qualified personnel.
- General safety regulations and nationally applicable accident prevention guidelines must be observed.
- Electrical installation must be carried out according to the relevant guidelines (e.g. line cross section, fuse, protective ground connection).

2.6 Operation

2.6.1 Protection against touching electrical parts

To operate programmable logic controllers, operating and monitoring devices, and uninterruptible power supplies, certain components must carry dangerous voltage levels of over 42 VDC. A life-threatening electrical shock could occur if you come into contact with these parts. This could result in death, severe injury, or material damage.

Before turning on the programmable logic controller, the operational and monitoring devices and the uninterruptible power supply, ensure that the housing is properly grounded (PE rail). The ground connection must be established when testing the operating and monitoring devices or the uninterruptible power supply, even when operating them for only a short time.

Before turning the device on, make sure that all voltage-carrying parts are securely covered. During operation, all covers must remain closed.

2.6.2 Programs, viruses, and dangerous programs

The system is subject to potential danger each time data is exchanged or software is installed from a data medium (e.g. diskette, CD-ROM, USB flash drive, etc.), a network connection, or the Internet. The user is responsible for assessing these dangers, implementing preventative measures such as virus protection programs, firewalls, etc. and obtaining software from reliable sources.

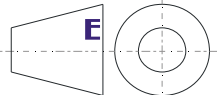
3 Organization of safety notices

The safety notices in this manual are organized as follows:

Safety notice	Description
Danger!	Disregarding the safety regulations and guidelines can be life-threatening.
Caution!	Disregarding the safety regulations and guidelines can result in severe injury or major damage to material.
Warning!	Disregarding the safety regulations and guidelines can result in injury or damage to material.
Information:	Important information for preventing errors.

Table 2: Organization of safety notices

4 Guidelines

	All dimension diagrams (e.g. dimension diagrams, etc.) are drawn according to European dimension standards.
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5 Material number / serial number

Each B&R device is assigned a unique serial number label with bar code, which allows the device to be clearly identified.

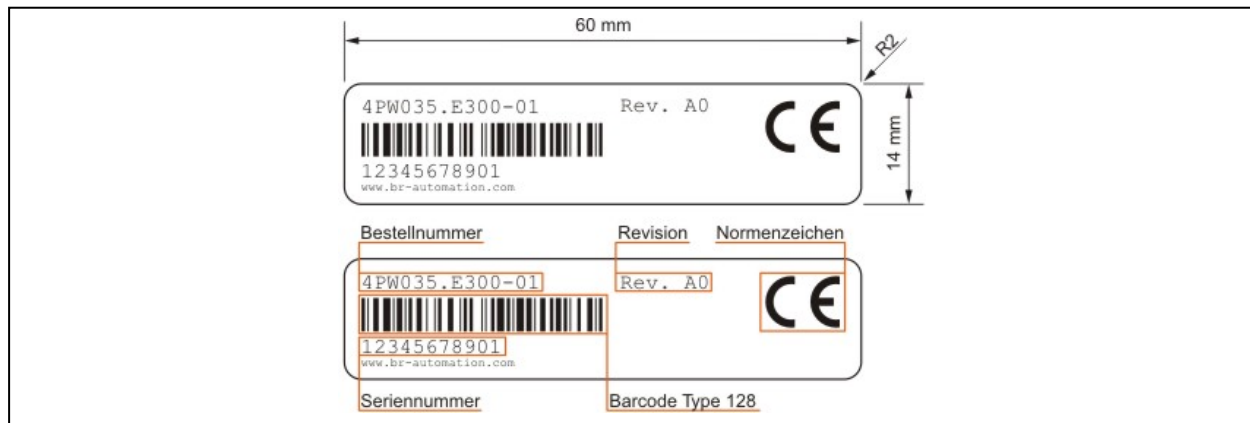


Figure 1: Design/dimensions - Serial number sticker

If you are a registered user on the B&R homepage (www.br-automation.com), you can retrieve information regarding your products using your material number or serial number. You have access to the revision history for the B&R products you have purchased.

6 Model number

6.1 Display units

Model number	Description	Note
4B1260.00-390	Compact HMI/RT 4x20 RS232 HMI terminal (escape sequences), LCD display, 4 x 20 characters, background lighting, 20 keys, RS232 interface, 5 VDC supply	

Table 3: Model number - Display unit

6.2 Accessories

Model number	Description	Note
4A0046.00-000	Set of legend strips for 4B1260/1270.00-390	
4A0027.00-000	Power supply for compact HMI	

Table 4: Model number overview - Accessories

Chapter 2 • Technical data

1 General information

Panelware P126 devices are space-saving operator panels in a plastic housing. They are equipped with a 4 x 20 character LCD display. The display contrast can be adjusted using its buttons.

In addition, it comes with a 20-key membrane keypad, 14 of which are equipped with an LED indicator. The lower block of keys can be labeled using legend strips.

The RS232 interface is designed for use with a DSUB connector, which also provides the device with 5 VDC.



Figure 2: Panelware P126

2 Operator panel

2.1 4B1260.00-390



Figure 3: Front view - 4B1260.00-390



Figure 4: Rear view - 4B1260.00-390

Technical data

Features	4B1260.00-390
Display Type Resolution Background lighting Lifespan Character set	LCD b/w 4 x 20 characters LED 100,000 hours European / Katakana
RS232 interface Electrical isolation Design Baud rate	No 9-pin DSUB 9600 baud
Keys Amount Label	20 keys, 14 with LED indicator 14 keys with legend strips
Electrical characteristics	
Power supply Rated voltage Rated current ¹⁾ Power consumption ¹⁾	5.2 V (min. 5.0 V, max. 5.5 V) 80 mA Approx. 2.0 W (max. 2.6 W)
Environmental conditions	
Ambient temperature Operation Storage / Transport	0°C .. + 50°C -20°C .. +60°C
Relative humidity Operation / Storage / Transport	5 .. 90% (non-condensing)
Mechanical characteristics	
Protection type Outer dimensions (W x H x D) Weight	IP65 (front side) 153 x 120 x 46.1 Approx. 0.5 kg

Table 5: Technical data - 4B1260.00-390

¹⁾ When supplied by power supply 4A0027.00-000 at 24 VDC

Dimensions

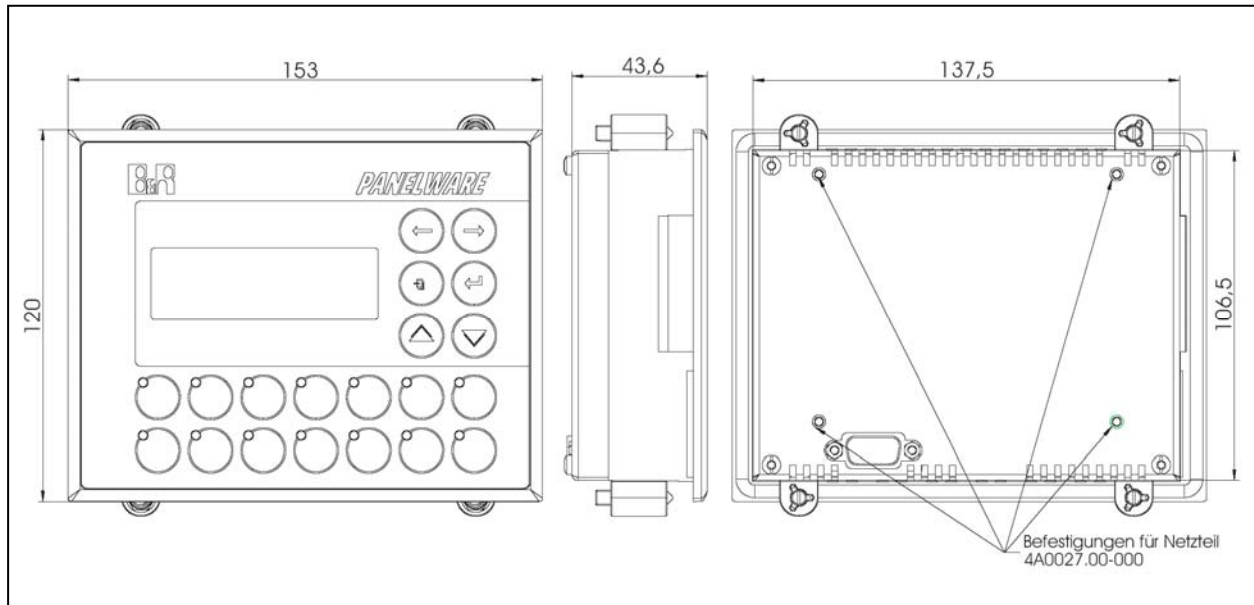


Figure 5: Dimensions - 4B1260.00-390

Installation cutout: 141 mm x 108 mm (max. 4.5 mm plate thickness)

3 Mounting instructions

Please note the following mounting instructions:

- 1) The 4B1260.00-390 device must be mounted with the four retaining clips included in delivery.
- 2) In order to guarantee proper air circulation, allow a distance of at least 20 mm (above and below) between the ventilation slots and all other objects.

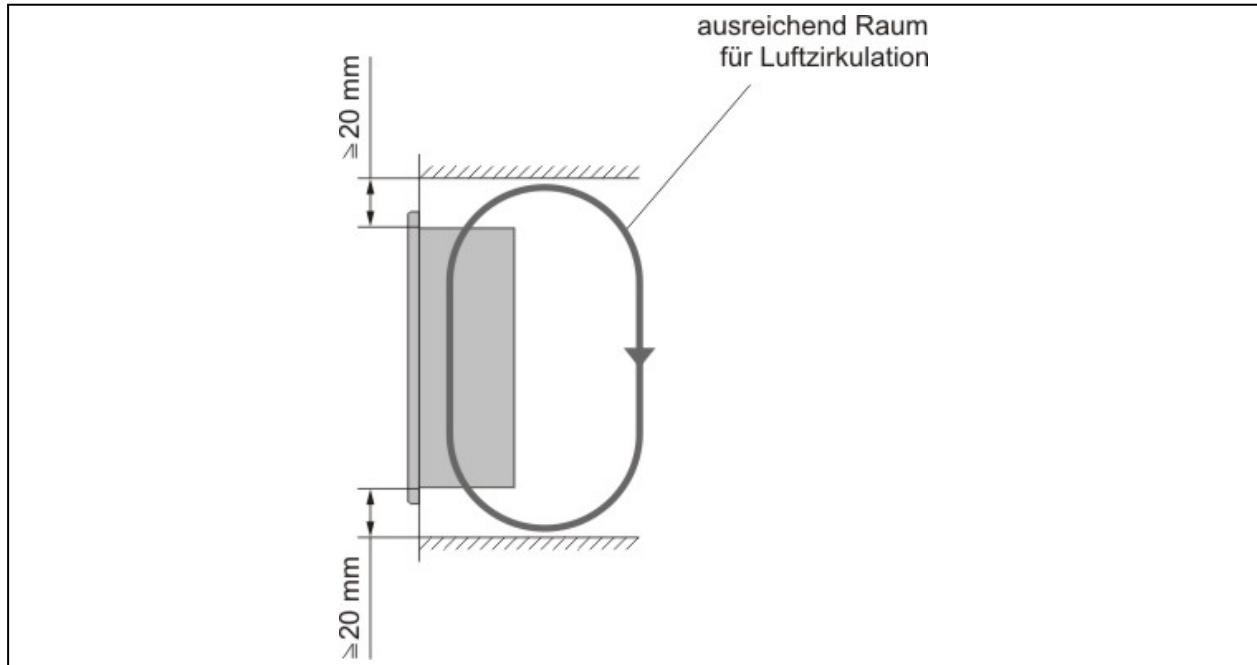


Figure 6: Space for air circulation

3) The 4B1260.00-390 can be mounted up to a maximum angle of $\pm 45^\circ$.

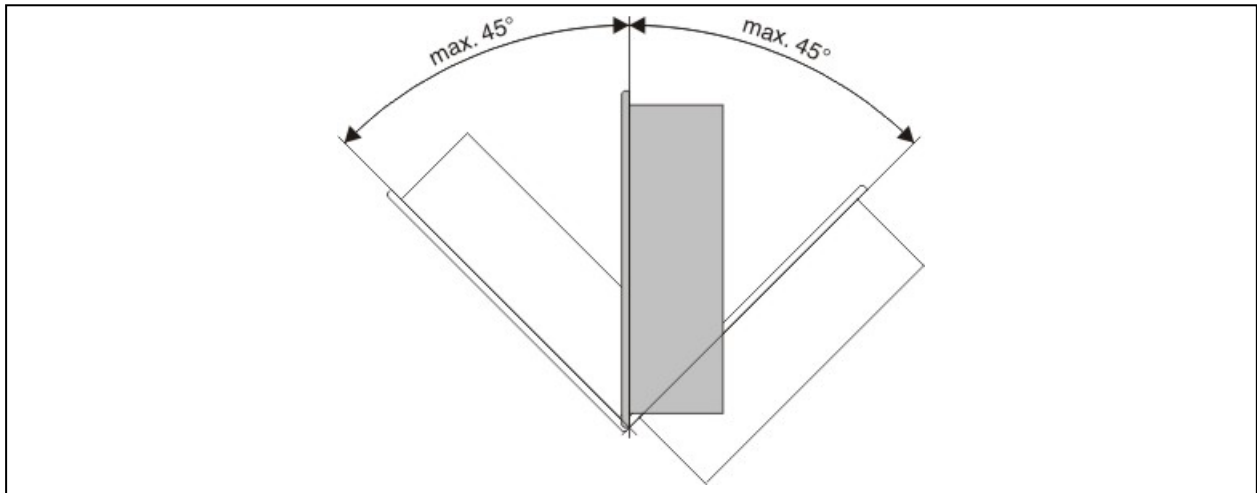


Figure 7: Panelware PW35 installation angle

4 Components

4.1 LCD display

The 4B1260.00-390 is equipped with a 4 x 20 character LCD display. This display comes with LED background lighting (yellow/green). The display contrast can be adjusted using its buttons.

Procedure:

The display is selected by pressing Enter. While holding this key, the contrast can be adjusted by pressing the Up or Down key.

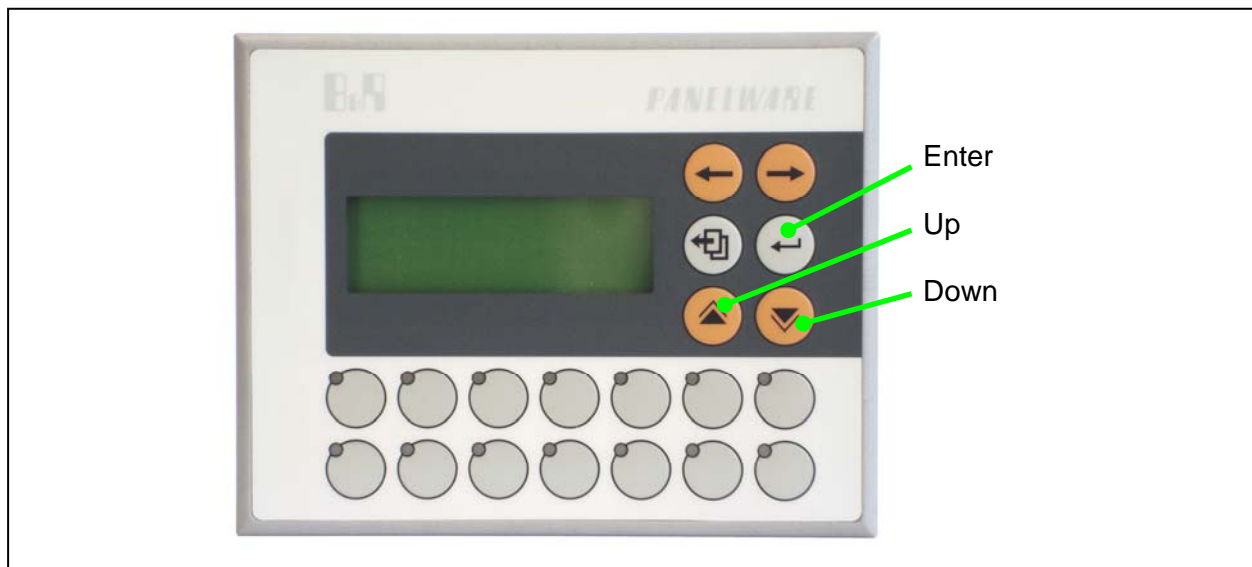


Figure 8: Contrast setting

The contrast setting made in this way is placed in nonvolatile memory and becomes the default value.

Important:

The key codes for the Up and Down keys are not sent to the controller as long as Enter is being pressed. For this reason, it is not possible to use the key combinations Enter+Up or Enter+Down in the application project.

4.2 Membrane

Information:

The following characteristics, features, and limit values only apply to this individual component and can deviate from those for the entire device. For the entire device in which this individual component is used, refer to the data given specifically for the entire device.

The Mylar conforms to DIN 42115 (section 2). This means it is resistant to exposure to the following chemicals for a 24-hour period with no visible signs of damage:

Ethanol Cyclohexanol Diacetone alcohol Glycol Isopropanol Glycerine Methanol Triacetin Dowandol DRM/PM	Formaldehyde 37%-42% Acetaldehyde Aliphatic hydrocarbons Toluene Xylene White spirits	1.1.1.Trichloroethane Ethyl acetate Diethyl ether N-Butyl acetate Amyl acetate Butylcellosolve Ether
Acetone Methyl ethyl ketone Dioxan Cyclohexanone MIBK Isophorone	Formic acid < 50% Acetic acid < 50% Phosphoric acid < 30% Hydrochloric acid < 36% Nitric acid < 10% Trichloroacetic acid < 50% Sulphuric acid < 10%	Sodium hypochlorite < 20% Hydrogen peroxide < 25% Potassium carbonate Washing agents Fabric conditioner Ferric chloride Ferrous chloride (FeCl ₂) Ferrous chloride (FeCl ₃) Dibutyl phthalate Diocetyl phthalate Sodium carbonate
Ammonia < 40% Caustic soda < 40% Potassium hydroxide Alkali carbonate Bichromate Potassium Acetonitrile Sodium bisulphate	Cutting oil Diesel oil Linseed oil Paraffin oil Blown castor oil Silicon oil Turpentine oil substitute Universal brake fluid Aviation fuel Petrol Water Sea water Decon	

Table 6: Chemical resistance of the mylar

The Mylar conforms to DIN 42115 section 2 for exposure to glacial acetic acid for less than one hour without visible damage.

4.2.1 Mylar keypad

The 4B1260.00-390 is equipped with a Mylar keypad with 20 keys, 14 of which are equipped with LEDs (yellow). The labels for the right-hand key block are permanent. The labels for the lower key block can be changed (using legend strips). Special laser-printable legend strips (model number 4A0046.00-000) are available for this.

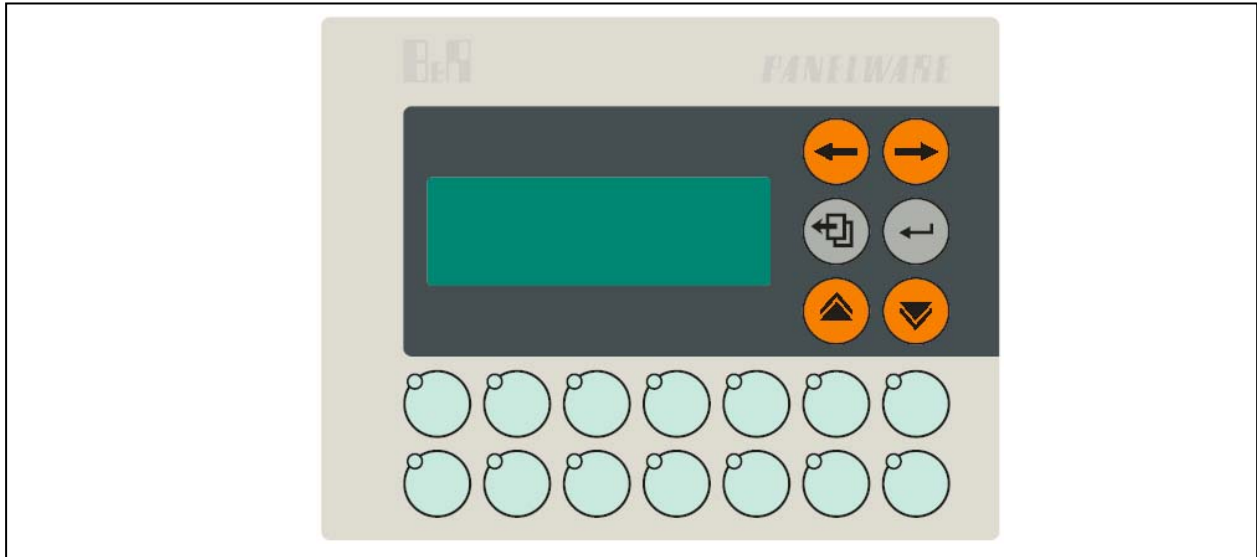


Figure 9: Mylar keypad

Key and LED codes

The following image displays key and LED codes in decimal form.

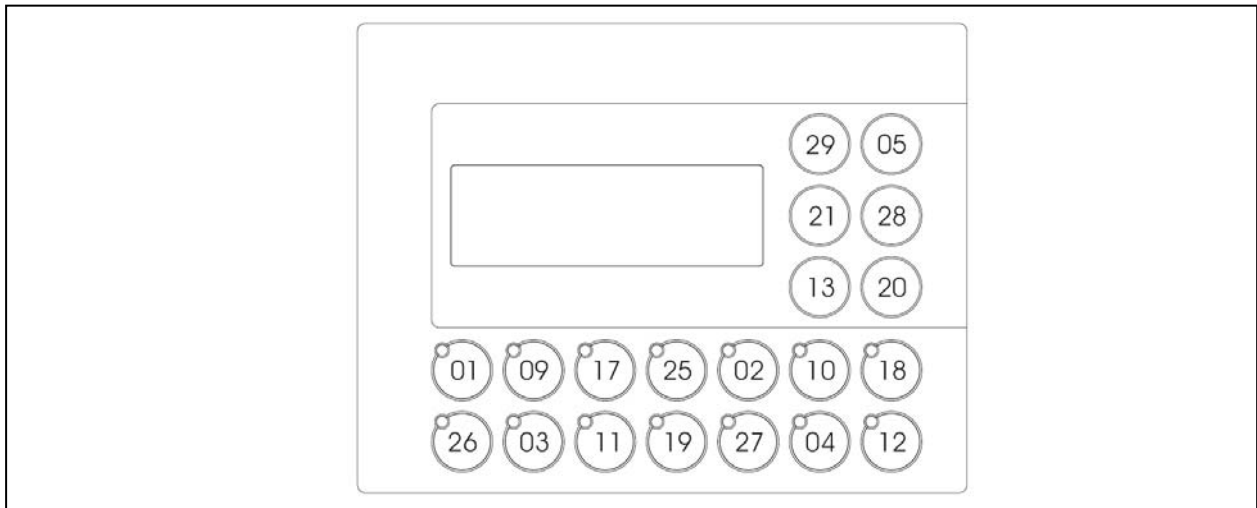


Figure 10: Key and LED codes

4.3 Interfaces

4.3.1 RS232 interface and supply

The 4B1260.00-390 is equipped with an RS232 interface. Like the supply connection, it is designed as a 9-pin DSUB interface. The device can also be supplied with 24 VDC with the 4A0027.00-000 power supply. It can be mounted on the rear of the 4B1260.00-390 and uses a BL3 connector for the supply and a 9-pin DSUB connector for the RS232 connector. The power supply is connected to the DSUB interface on the 4B1260.00-390 using the accompanying cable.

RS232 interface and supply - 4B1260.00-390	
Connection	Description
1	NC
2	RXT
3	TXD
4	+5 VDC
5	GND
6	+5 VDC
7	NC
8	NC
9	NC




Figure 11: RS232 interface and supply - 4B1260.00-390



RS232 interface and supply - 4A0027.00-000		
		DSUB interface
Connection	Description	
1	NC	
2	RXT	
3	TXD	
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	
		BL3 interface
Connection	Description	
1	Ground	
2	GND	
3	+24 VDC	

Figure 12: RS232 interface and supply - 4A0027.00-000

Chapter 3 • Software

1 General information

Operation

The 4B1260.00-390 communicates with the PLC via the RS232 interface. Data that is received but that cannot be processed is suppressed. An error message is not output!

The operating system on the P126 differentiates between the following information:

- ASCII characters (output directly on the display)
- Control characters (e.g. cursor position)
- Attribute control
- Binary / ASCII conversion
- Key queries
- Indicator and key lighting

Important:

The 4B1260.00-390 does not have any memory for application programs and is not designed to be used with Automation Studio!

2 Command set

2.1 Command sequences

Most commands consist of sequences that are put together as follows:

1. Control characters
2. Characters that specify the command
3. Possible parameters

Either the ASCII character <ESC> (dec. 27, hex. 1B) or <Ctrl> is used as control characters. The panel begins with the execution of the command only when the number of required parameters is complete.

3 Commands

3.1 Overview of commands

ASCII	Hex.	Dec.	Command
Control characters			
<Ctrl> H	08	08	Left cursor
<Ctrl> I	09	09	Right cursor
<Ctrl> J	0A	10	Down cursor (line feed)
<Ctrl> K	0B	11	Up cursor
<Ctrl> L	0C	12	Cursor HOME
<Ctrl> M	0D	13	Carriage return
<Ctrl> R (r) (c)	12 (r) (c)	18 (r) (c)	Position cursor in column (c) / row (r)
<ESC> N (r)	1B 4E (r)	27 78 (r)	Position cursor at first position in row r
<ESC> P (c)	1B 50 (c)	27 80 (c)	Position cursor in current row in column c
<ESC> J	1B 4A	27 74	Enable cursor symbol
<ESC> K	1B 4B	27 75	Disable cursor symbol
Attribute control			
<Ctrl> O	0F	15	Attribute: Blinking on
<Ctrl> N	0E	14	Attribute: Blinking off
<Ctrl> U	15	21	Character blinking
<Ctrl> T	14	20	Character not blinking
Binary / ASCII conversion			
<ESC> U (x)	1B 55 (x)	27 85 (x)	Output binary number (x) as a 3-digit decimal number
<ESC> V (x)	1B 56 (x)	27 86 (x)	Output binary number (x) as a 2-digit decimal number
<ESC> H (x)	1B 48 (x)	27 72 (x)	Output binary number (x) as a 2-digit hexadecimal number
<ESC> Y (x)	1B 59 (x)	27 89 (x)	Output binary number (x) as a 2-digit hexadecimal number (with additional space)
<Ctrl> Y (x1) (x0)	19 (x1) (x0)	25 (x1) (x0)	Output 2-byte number (x1) (x0) as a 4-digit decimal number with decimal point
<Ctrl> Z (x1) (x0)	1A (x1) (x0)	26 (x1) (x0)	Output 2-byte number (x1) (x0) as a 3-digit decimal number with decimal point and/or sign
Key queries			
<ESC> W	1B 57	27 87	Query key code
Indicator lighting			
<ESC> G (x)	1B 47 (x)	27 71 (x)	Set length of lighting
Key lighting			
<ESC> E (x)	1B 45 (x)	27 69 (x)	Turn on LED (x)
<ESC> A (x)	1B 41 (x)	27 65 (x)	Turn off LED (x)
<ESC> T	1B 54	27 84	Turn on all LEDs
<ESC> C	1B 43	27 67	Turn off all LEDs
<ESC> L (x)	1B 4C (x)	27 76 (x)	Blink LED (x) slowly
<ESC> S (x)	1B 53 (x)	27 83 (x)	Blink LED (x) quickly
<ESC> I	1B 6C	27 108	Blink all LEDs slowly
<ESC> S	1B 73	27 115	Blink all LEDs quickly

Table 7: Overview of commands

Delete functions			
<ESC> R	1B 52	27 82	Reset panel
<ESC> B	1B 42	27 66	Clear display
<ESC> D	1B 44	27 68	Delete row from cursor position onward
<ESC> F (r)	1B 46 (r)	27 70 (r)	Delete row (r)
ASCII characters			
	20 - FF	32 – 255	ASCII characters

Table 8: Overview of commands (cont.)

3.2 Control characters

Left cursor

Description:

Moves the cursor one position to the left. Upon reaching the left edge of the display, the cursor will be placed at the last position of the previous row. If the cursor is in the HOME position (first column, first row), then the cursor will be moved to the last column of the last row.

Command:

Syntax	<Ctrl>	<H>
Hex.		08
Dec.		08

Right cursor

Description:

Moves the cursor one position to the right. Upon reaching the right edge of the display, the cursor will be placed at the first position of the next row. If the cursor is in the last column of the last row, then the cursor will be moved to the HOME position.

Command:

Syntax	<Ctrl>	<I>
Hex.		09
Dec.		09

Down cursor (line feed)

Description:

Moves the cursor one position down. If the cursor is in the last row, then the cursor will be moved to the same column of the first row.

Command:

Syntax	<Ctrl>	<J>
Hex.		0A
Dec.		10

Up cursor**Description:**

Moves the cursor one position up. If the cursor is in the first row, then the cursor will be moved to the same column of the last row.

Command:

Syntax	<Ctrl>	<K>
Hex.		11
Dec.		0B

Cursor HOME**Description:**

Moves the cursor to the first column of the first row.

Command:

Syntax	<Ctrl>	<L>
Hex.		0C
Dec.		12

Carriage return**Description:**

Moves the cursor to the first column of the current row.

Command:

Syntax	<Ctrl>	<M>
Hex.		0D
Dec.		13

Position cursor in column (c) / row (r)**Description:**

Moves the cursor to column (c) of row (r).

Command:

Syntax	<Ctrl>	<R>	(r)	(c)
Hex.		12	(r)	(c)
Dec.		18	(r)	(c)

Range:

Hex. 00 <= (r) <= 03 00 <= (c) <= 13
 Dec. 00 <= (r) <= 03 00 <= (c) <= 19

Position cursor at first position in row r**Description:**

Moves the cursor to the first column of row (r).

Command:

Syntax	<ESC>	<N>	(r)
Hex.	1B	4E	(r)
Dec.	27	78	(r)

Range:

Hex. 00 <= (r) <= 03

Dec. 00 <= (r) <= 03

Position cursor in current row in column c**Description:**

Moves the cursor to column (c) of the current row.

Command:

Syntax	<ESC>	<P>	(c)
Hex.	1B	50	(c)
Dec.	27	80	(c)

Range:

Hex. 00 <= (c) <= 13

Dec. 00 <= (c) <= 19

Cursor on**Description:**

Marks the current cursor position with a blinking "underline" symbol.

Command:

Syntax	<ESC>	<J>
Hex.	1B	4A
Dec.	27	74

Cursor off**Description:**

Does not indicate the current cursor position.

Command:

Syntax	<ESC>	<K>
Hex.	1B	4B
Dec.	27	75

3.3 Attribute control**Attribute: Blinking on****Description:**

Displays all subsequently output characters with the attribute BLINKING.

Command:

Syntax	<Ctrl>	<O>
Hex.		0F
Dec.		15

Attribute: Blinking off**Description:**

Displays all subsequently output characters with the attribute NOT BLINKING.

Command:

Syntax	<Ctrl>	<N>
Hex.		0E
Dec.		14

Character blinking**Description:**

Displays the character at the current cursor position with the attribute BLINKING. The cursor remains at this position.

Command:

Syntax	<Ctrl>	<U>
Hex.		15
Dec.		21

Character not blinking

Description:

Displays the character at the current cursor position with the attribute NOT BLINKING. The cursor remains at this position.

Command:

Syntax	<Ctrl>	<T>
Hex.		14
Dec.		20

3.4 Binary / ASCII conversion

Output binary number (x) as a 3-digit decimal number

Description:

Outputs the binary number (x) as a 3-digit (max.) decimal number at the current cursor position with leading zeroes. The cursor is always moved three characters to the right. Output format (examples): "002" ... "099" ... "255"

Command:

Syntax	<ESC>	<U>	(x)
Hex.	1B	55	(x)
Dec.	27	85	(x)

Parameters: (x)..... Binary number

Range:

Hex. 00 <= (x) <= FF

Dec. 00 <= (x) <= 255

Output binary number (x) as a 2-digit decimal number

Description:

Outputs the binary number (x) as a 2-digit (max.) decimal number at the current cursor position with one leading zero. The cursor is always moved two characters to the right. Output format (examples): "02" ... "99". The values 100 - 255 are limited at 99.

Command:

Syntax	<ESC>	<V>	(x)
Hex.	1B	56	(x)
Dec.	27	86	(x)

Parameters: (x)..... Binary number

Range:

Hex. 00 <= (x) <= 63

Dec. 00 <= (x) <= 99

Output binary number (x) as a 2-digit hexadecimal number**Description:**

Outputs the binary number (x) as a 2-digit (max.) hexadecimal number at the current cursor position with one leading zero. The cursor is always moved two characters to the right. Output format (examples): "02" ... "FF".

Command:

Syntax	<ESC>	<H>	(x)
Hex.	1B	48	(x)
Dec.	27	72	(x)

Parameters: (x)..... Binary number

Range:

Hex. 00 <= (x) <= FF

Dec. 00 <= (x) <= 255

Output binary number (x) as a 2-digit hexadecimal number (with additional space)**Description:**

Outputs the binary number (x) as a 2-digit (max.) hexadecimal number at the current cursor position with one leading zero and a space. The cursor is always moved three characters to the right. Output format (examples): " 02" ... " FF".

Command:

Syntax	<ESC>	<Y>	(x)
Hex.	1B	59	(x)
Dec.	27	89	(x)

Parameters: (x)..... Binary number

Range:

Hex. 00 <= (x) <= FF

Dec. 00 <= (x) <= 255

Output 2-byte number (x1) (x0) as a 4-digit decimal number with decimal point**Description:**

Outputs the 2-byte number (x1) (x0) as a 4-digit decimal number with decimal point at the current cursor position. Bits 7 and 6 of (x1) determine the position of the decimal point.

Command:

Syntax	<Ctrl>	<Y>	(x1)	(x0)
Hex.		19	(x1)	(x0)
Dec.		25	(x1)	(x0)

Software • Command set

Parameters: (x1)..... MSB
(x0)..... LSB

Range:

Hex. 00 <= (x) <= 270F

Dec. 00 <= (x) <= 9999

Bit 7	Bit 6	Display format	Examples	Number of output characters
0	0	xxxx	0000.....0027.....9999	4
0	1	xxx.x	000.0....002.7.....999.9	5
1	0	xx.xx	00.00....00.27.....99.99	5
1	1	x.xxx	0.000....0.027.....9.999	5

Output 2-byte number (x1) (x0) as a 3-digit decimal number with decimal point and/or sign

Description:

Outputs the 2-byte number (x1) (x0) as a 3-digit decimal number with decimal point and/or sign at the current cursor position. Bits 7 and 6 of (x1) determine the position of the decimal point. Bits 5 and 4 determine the sign.

Command:

Syntax	<Ctrl>	<Z>	(x1)	(x0)
Hex.		1A	(x1)	(x0)
Dec.		26	(x1)	(x0)

Parameters: (x1)..... 1. Byte
(x0)..... 0. Byte

The "_" character in the following table represents a space.

Bit 7	Bit 6	Bit 5	Bit 4	Display format	Examples	Number of output characters
0	0	0	0	xxx	027 999	3
0	1	0	0	xx.x	02.7 99.9	4
1	0	0	0	x.xx	0.27 9.99	4
1	1	0	0	.xxx	.027 .999	4
0	0	0	1	+xxx	+027 +999	4
0	1	0	1	+xx.x	+02.7 +99.9	5
1	0	0	1	+x.xx	+0.27 +9.99	5
1	1	0	1	+.xxx	+.027 +.999	5
0	0	1	0	_xxx	_027 _999	4
0	1	1	0	_xx.x	_02.7 _99.9	5
1	0	1	0	_x.xx	_0.27 _9.99	5
1	1	1	0	_.xxx	_.027 __.999	5
0	0	1	1	-xxx	-027 -999	4
0	1	1	1	-xx.x	-02.7 -99.9	5
1	0	1	1	-x.xx	-0.27 -9.99	5
1	1	1	1	-.xxx	-.027 -.999	5

3.5 Key queries

Query key code

Description:

Returns the key code (1 byte) of the key currently being pressed as a response from the panel. If no key is being pressed, FF (hex.) or 255 (dec.) is returned.

Command:

Syntax	<ESC>	<W>
Hex.	1B	57
Dec.	27	87

3.6 Indicator lighting

Set length of lighting

Description:

Command:

Syntax	<ESC>	<G>	(x)
Hex.	1B	47	(x)
Dec.	27	71	(x)

Parameters: (x)..... Minutes

(x) = 00: Indicator lighting permanently turned off

(x) = FF: Indicator lighting permanently turned on

3.7 Key lighting

Turn on LED (x)

Description:

This command can be used to turn on individual LEDs.

Command:

Syntax	<ESC>	<E>	(x)
Hex.	1B	45	(x)
Dec.	27	69	(x)

Parameters: (x)..... LED number (same as the key code)

Turn on all LEDs**Description:**

This command can be used to turn on all LEDs.

Command:

Syntax	<ESC>	<T>
Hex.	1B	54
Dec.	27	84

Turn off LED (x)**Description:**

This command can be used to turn off individual LEDs.

Command:

Syntax	<ESC>	<A>	(x)
Hex.	1B	41	(x)
Dec.	27	65	(x)

Parameters: (x)..... LED number (same as the key code)

Turn off all LEDs**Description:**

This command can be used to turn off all LEDs.

Command:

Syntax	<ESC>	<C>
Hex.	1B	43
Dec.	27	67

Blink LED (x) slowly**Description:**

This command makes individual LEDs blink slowly (1 Hz).

Command:

Syntax	<ESC>	<L>	(x)
Hex.	1B	4C	(x)
Dec.	27	76	(x)

Parameters: (x)..... LED number (same as the key code)

Blink all LEDs slowly

Description:

This command makes all LEDs blink slowly (1 Hz).

Command:

Syntax	<ESC>	<l>
Hex.	1B	6C
Dec.	27	108

Blink LED (x) quickly

Description:

This command makes individual LEDs blink quickly (2 Hz).

Command:

Syntax	<ESC>	<S>	(x)
Hex.	1B	53	(x)
Dec.	27	83	(x)

Parameters: (x)..... LED number (same as the key code)

Blink all LEDs quickly

Description:

This command makes all LEDs blink quickly (2 Hz).

Command:

Syntax	<ESC>	<s>
Hex.	1B	73
Dec.	27	115

3.8 Delete functions

Reset panel

Description:

The system resumes the state it was in when it was turned on.

Command:

Syntax	<ESC>	<R>
Hex.	1B	52
Dec.	27	82

Clear display**Description:**

Clears the entire display. The cursor is moved to the HOME position.

Command:

Syntax	<ESC>	
Hex.	1B	42
Dec.	27	66

Delete row from cursor position onward**Description:**

Deletes the contents of the current row including the cursor's position. The cursor is moved to the first column in the next row. If the cursor is already in the last row, it is moved to the first row.

Command:

Syntax	<ESC>	<D>
Hex.	1B	44
Dec.	27	68

Delete row (r)**Description:**

Deletes the contents of the current row (r). The cursor is moved to the first column in the deleted row.

Command:

Syntax	<ESC>	<F>	(r)
Hex.	1B	46	(r)
Dec.	27	70	(r)

3.9 ASCII characters

ASCII characters

Description:

ASCII characters are output directly on the display at the current cursor position. The cursor is moved one position to the right. All characters in the \$20 - \$FF range (dec. 32 - 255) count as ASCII characters.

Command:

Syntax	
Hex.	20 - FF
Dec.	32 - 255

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