

**PBT 103**  
**Process Operation Keyboard**

**Device Description**  
A91M.12-271636.22-0692EN

Translation of the German Description  
A91M.12-271607

## Notes

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### Application Note



**Caution** The relevant regulations must be observed for control applications involving safety requirements. For reasons of safety and to ensure compliance with documented system data, repairs to components should be performed only by the manufacturer.

### Training

AEG offers suitable training that provides further information concerning the system (see addresses).

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# Terminology

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**Note** This symbol emphasizes very important facts.



**Caution** This symbol refers to frequently appearing error sources.



**Warning** This symbol points to sources of danger that may cause financial and health damages or may have other aggravating consequences.



**Expert** This symbol is used when a more detailed information is given, which is intended exclusively for experts (special training required). Skipping this information does not interfere with understanding the publication and does not restrict standard application of the product.



**Path** This symbol identifies the use of paths in software menus.

MMI Man-machine interface

VIP Visual display processor

Figures are given in the spelling corresponding to international practice and approved by SI (Système International d' Unités).

I.e. a space between the thousands and the usage of a decimal point (e.g.: 12 345.67).

## Objectives

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The objective is to explain the following devices to the persons configuring and the users:

- ❑ the application
- ❑ the mechanical structure
- ❑ the operation
- ❑ the operator and display elements
- ❑ the circuitry
- ❑ the port.

## Arrangement of This Guide

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- Chapter 1** contains the description of the application, the mechanical structure and the operation. Additionally, the chapter contains a survey of the connection possibilities.
- Chapter 2** contains the description of the operator elements and the display elements.
- Chapter 3** contains the description of the device connection (local range, remote range or parallel operation). Additionally, the chapter contains a description of the fuse change and the volume control of the beep tone.
- Chapter 4** contains the specifications.

## Related Documents

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In addition to this document, we recommend to read the following publications, thus you will get a better understanding of the associated equipment.

Viewstar 200  
Catalog  
(for ordering details)  
(under development)

Process Peripherals  
Front Connection  
A130 / A350 / A500  
User Manual  
A91M.12-271613EN  
(contains module description  
VIP 101)

Viewstar 200 XA  
Integrated MMI-Station  
Operating Instructions  
A91M.12-271884EN

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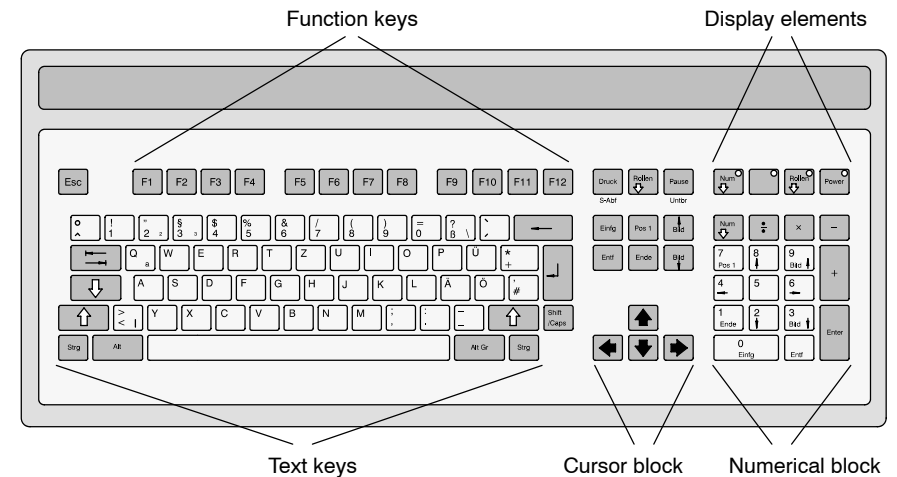
# Chapter 1

## General

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- Application
- Mechanical Structure
- Operation

## 1.1 Application



**Figure 1** PBT 103 Membrane Keyboard

The PBT 103 is an operating device of the Viewstar 200 XA product line.

PBT 103 is connected to the VIP 101 module.

PBT 103 has a current-loop interface and is intended for harsh industrial environment in the local and remote range. The F1-F8 function keys, the cursor block and the numerical block are used to operate Viewstar 200 XA. All the remaining keys are not relevant to the operation.

## 1.2 Mechanical Structure

The keyboard is designed as a membrane keyboard. The polyester membrane is stuck onto a steel plate built into a standard plastic housing. PBT 103 has a PCB with integrated electronics and a 20 mA current-loop interface.

## 1.3 Operation

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Every key actuation is acknowledged by a beep tone. The volume can be adjusted using a potentiometer.

The connection of PBT 103 to VIP 101 is monitored by a code output from PBT 103. If the connection is interrupted, it is displayed on the screen after 3 seconds.

## 1.4 Connection Possibilities

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### 1.4.1 Standard Combination

There are different combination possibilities for connection VIP 101. Connection of PBT 103 to CMR 122 color monitor is available as standard combination in industrial environment and in remote range.

### 1.4.2 Further Connection Possibilities

If required, the standard combination can be expanded using other monitors and/or keyboards.

- CMR 125  
Monitor keyboard device for the local and remote range in industrial environment
- CMR 121  
Color monitor for the local and remote range in office environment
- PBT 102  
Process operating keyboard for the local range in office environment
- CMR 122  
Color monitor for the local and remote range in industrial environment

The combination possibilities can be selected from the following table. The detailed description of ports is located in chapter 3 of the corresponding device description.



**Caution No reciprocal interlocking of the keyboards is possible during the parallel operation.**

There are various combination possibilities during the connection of the peripherals.

The latter are listed in the table below.

The meaning of the symbols  $\square$   $\diamond$   $\triangle$   $\curvearrowright$   $\circ$   $\nabla$   $\perp$   $\ominus$  :

If the devices are marked with the same symbols it means that they can be connected simultaneously on VIP 101

**Example:**

(The combination possibilities of this example appear in the table with a grey background.)

If the **CMR 125** device is operated on VIP 101 in the **Remote** range, it means that the following can be connected simultaneously:

**either**

- the **CMR 121** device in the **Local** range (  $\square$  )  
and

- the **PBT 102** device in the **Local** range (  $\square$  )

**or**

- the **PBT 102** device in the **Local** range (  $\triangle$  )  
and

- the **CMR 122** device in the **Local** range (  $\triangle$  ).

		CMR 125		CMR 121		PBT 102		CMR 122		PBT 103	
		L	R	L	R	L	R	L	R	L	R
CMR 125	L				□				△		
	R			□		□		△			
CMR 121	L		□		○	× □ ⊃ ○			⊃ ◇	◇	⊃ ○
	R	□		○		○		▽		▽	○
PBT 102	L		△	□ × ⊃ ○	○			△ ⊃	⊃ ⊃		⊃ ○
	R										
CMR 122	L		△		▽	⊃ △			⊃ ⊃	× ▽ ⊃	⊃
	R	△		⊃ ◇		⊃ ⊃		⊃ ⊃		◇ ⊃	× ⊃ ⊃
PBT 103	L			◇	▽			× ▽ ⊃	◇ ⊃		
	R			⊃ ○	○	⊃ ⊃ ○		⊃	× ⊃ ⊃		

L = Local Range    R = Remote Range    X = Standard Combination

**Figure 2 Combination Possibilities of the Peripherals on VIP 101**





# Chapter 2

## Operation

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- Operator Elements
- Display Elements

## 2.1 Operator Elements

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The operation and function of the individual keys are described in the operating instructions of "Viewstar 200 XA".

## 2.2 Display Elements

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The meaning of the LEDs:



LED lights up: Power supply is available  
LED does not light up: Power supply is not available

**Figure 3 Power-LED**



LED lights up: Numerical block is used to input numerals  
LED does not light up: Numerical block is used to control the cursor

**Figure 4 NUM-LED**



LED lights up: Scroll screen contents: ON  
LED does not light up: Scroll screen contents: OFF

Not relevant in Viewstar 200 XA

**Figure 5 Scroll LED**



LED lights up: Capital letters are used  
LED does not light up: Small initial letters are used

Not relevant in Viewstar 200 XA

**Figure 6 Capital Letter LED**



# Chapter 3

## Configuration

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- Settings
- Device Connection
- Changing the Fuse
- Volume Control

## 3.1 Settings

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An 8-pole DIP switch is located in the upper right hand area of the PCB. Switches 1-5 are necessary in order to configure the interface. Switches 6-8 have no function. The DIP switch is configured for operation on VIP 101 on delivery ex works. The following setting serves for checking purposes only.

- Setting for VIP 101 (condition on delivery)
  - 1 200 baud
  - Parity: on
  - Autorepeat: on
  - TTY active
  - IBM interface XT

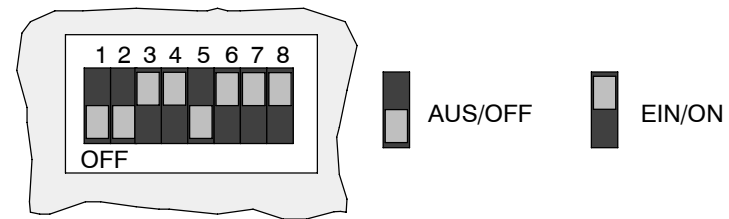


Figure 7 Setting for VIP 101

## 3.2 Device Connection

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### 3.2.1 Power Supply Port

An external 24 V port should be fitted into VIP 101 for the electronics power supply and current-loop interfaces of PBT 103. The description is located in the "Process Peripherals" user manual (module description VIP 101).

PBT 103 is supplied via the corresponding connection cable for the local and remote ranges.

### 3.2.2 Local Range

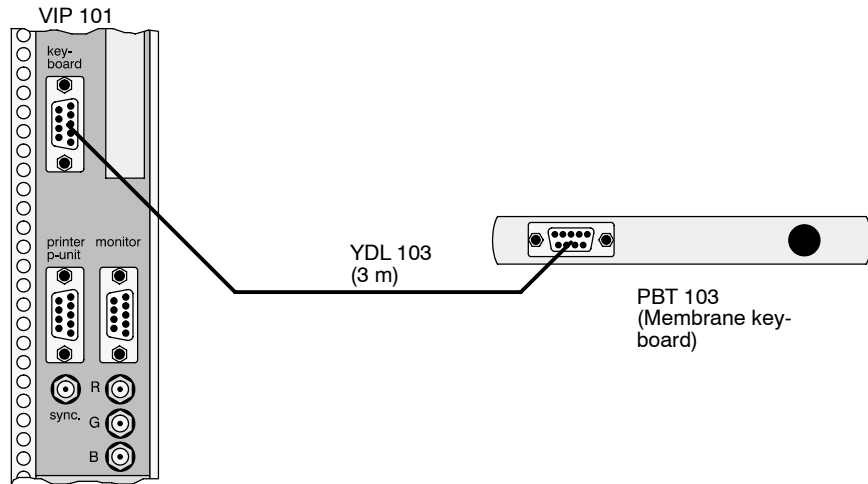
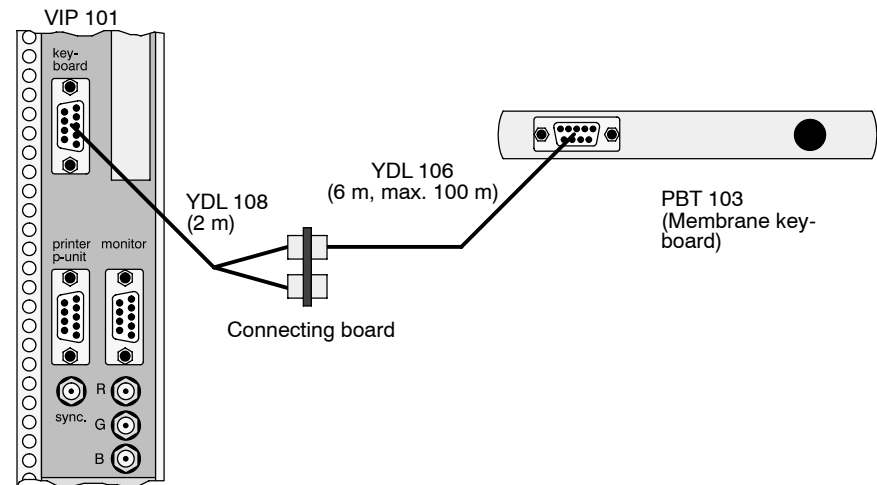


Figure 8 PBT 103 - VIP 101 Port: Local Range

### 3.2.3 Remote Range



**Figure 9 PBT 103 - VIP 101 Port: Remote Range**

If required, the cable YDL 106 can be supplied to a length of up to 100 m. The connecting board of the cable YDL 108 has to be mounted on a mounting set for EMC reasons. This set has to be ordered separately.

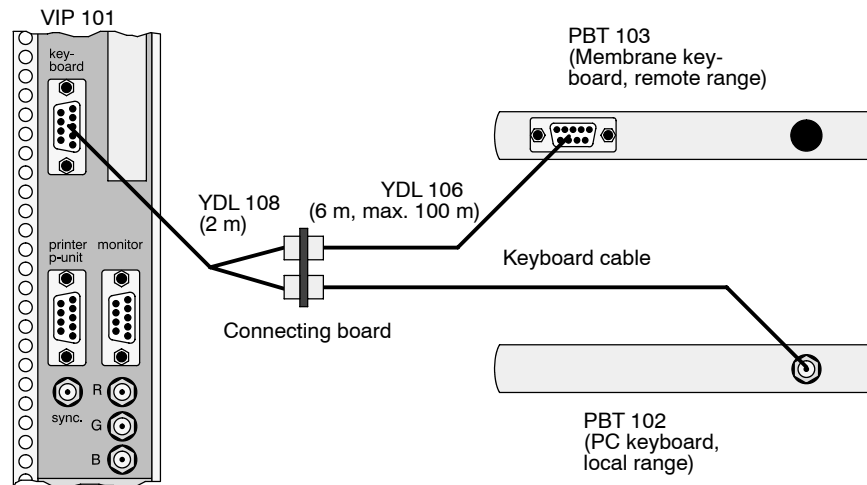


### 3.2.4 Parallel Operation

PBT 103 can, e.g., be operated in parallel (in remote range) to PBT 102 (in local range).



**Caution** No reciprocal interlocking of the keyboards is possible during the parallel operation.



**Figure 10** PBT 103 / PBT 102 - VIP 101 Port: Parallel Operation

If required, the cable YDL 106 can be supplied to a length of up to 100 m. The connecting board of the YDL 108 cable has to be mounted on a mounting set for EMC reasons. This set has to be ordered separately.

### 3.3 Fuse Change

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**Warning Pull the connecting cable before starting!**

Changing the fuse:

- Remove the bottom plate (the fuse is located in the upper left-hand area of the PCB)
- Exchange the defective fuse (T100 mA)
- Refasten the bottom plate

### 3.4 Volume Control

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Volume control of the keyboard:

- Remove the bottom plate (the fuse is located in the upper right-hand area of the PCB)
- Set the desired volume
  - Anti-clockwise rotation: loud
  - Clockwise rotation: low
- Refasten the bottom plate

# Chapter 4

## Specifications

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- Assignment
- Power Supply Interfaces
- Data Interfaces
- Mechanical Structure
- Environmental Characteristics
- Ordering Details

## Specifications

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### Assignment

Device	A350/A500
Product Line	Viewstar 200 XA
Module	VIP 101

### Power Supply Interface

Power Supply	18 ... 36 VDC (via VIP 101)
Current Consumption	50 mA

### Fuse

Fuse-Link	T 100 mA
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### Data Interface

Interface	Serial, current-loop 20 mA, passive, potential isolated
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### Mechanical Structure

Materials	Recognized as safe according to DIN 49 573, point 2.2.1, no silicon
Measurements	490 x 235 x 50 mm (W x D x H)

Weight	1.9 kg
Service Life of the Keys	> 10 <sup>6</sup> depressions

### **Environmental Characteristics**

Ambient Temperature	0 ... 50 °C
Storage Temperature	-25 ... 70 °C
Type of Protection	IP 65 according to DIN 40 050, part 3, housing connector IP 40
Humidity Level	Class E
Degree of Noise Suppression	< B according to VDE 0871
Resistance to Corrosive Atmosphere	
Test Conditions	According to IEC 68-2-42 (SO <sub>2</sub> ), IEC 68-2-43 (H <sub>2</sub> S)
Application Class	According to DIN 40 040, KSE
Regulations Complied with	VDE 0100, 0110, 0160, 0806 IEC 950

## Ordering Details

E-No. 424-

Membrane Keyboard  
PBT 103

274 010

### Cable

YDL 103 (3 m)

241 550

YDL 106 (6 m)

241 551

YDL 108 (2 m)

241 573

### Mounting Sets

MTR 101  
(19" Wall/Cabinet Mounting)

241 569

MTR 102  
(1/2 19" Wall Mounting)

241 570

We reserve the right to make technical alterations!

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