MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6AV6648-0EC11-3AX0

SMART 700 IE V5 OPERATOR PANEL

Used with the applicable SIMATIC HMI SMART Panel V5 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens A5E53807433-AB, sections 4 and 9.6

Preface

Purpose of the operating instructions

These operating instructions provide information based on the requirements defined by IEC 62079 for documentation. This information relates to the HMI device, its storage, transportation, place of use, installation, use and maintenance.

These operating instructions are intended for a variety of target groups. The following table shows the chapters of these operating instructions that are of particular importance for the respective target group.

Target group	Chapter
All	"Safety instructions"
Operators The operator operates and monitors the system during the process control phase.	"Overview" "Operating the device"
Commissioning engineers The commissioning engineer integrates the HMI device into the system and ensures the operating capability of the HMI device for the process control phase.	All chapters. Depending on the use of the HMI device, certain chapters may not be of relevance to the commissioning engineer, e.g. the section "Maintenance and care."
Service technicians Service technicians rectify faults that occur during the process control phase.	All chapters. Depending on the use of the HMI device, certain chapters may not be of relevance to the service technicians, e.g. the section "Maintenance and care."
Maintenance technicians Maintenance technicians carry out servicing and maintenance work during the process control phase.	Maintenance and care

The WinCC flexible SMART online help contains additional information. The online help contains instructions, examples and reference information in electronic form.

Scope

These operating instructions apply to the following Smart HMI devices:

Product name	MLFB number
SIMATIC HMI Smart 700 IE V5	6AV6648-0EC11-3AX0
SIMATIC HMI Smart 1000 IE V5	6AV6648-0EE11-3AX0
SIMATIC HMI Smart Plus 700 IE	6AV6648-2AC11-3AX0
SIMATIC HMI Smart Plus 1000 IE	6AV6648-2AE11-3AX0

Note

For Smart 700/1000 IE V5, the firmware version must be V5.0.1.0 and later versions.

In the following, all of these mounting options are referred to by the general term "cabinet".

The device is self-ventilated and approved for inclined mounting at angles up to +/-35° from the vertical in stationary cabinets.

NOTICE
Damage due to overheating Inclined installation reduces the convection by the device and therefore the maximum permitted ambient temperature for operation. If there is sufficient forced ventilation, the device can also be operated in the inclined mounting position up to the maximum permitted ambient temperature for vertical installation. The device may otherwise be damaged, and its certifications and warranty will be rendered null and void. The ambient temperature ranges listed in this section apply to the temperature inside the cabinet.

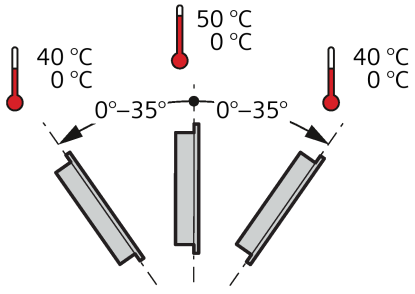
Mounting position

Select one of the approved mounting positions for your device. The approved mounting positions are described in the following sections.

Mounting in horizontal format

Ambient temperature in the cabinet with horizontal mounting:

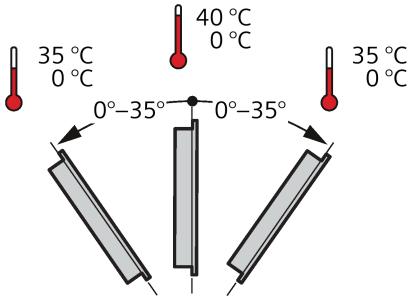
- Vertical mounting (0° inclined): Maximum +50 °C
- Inclined mounting (inclined up to 35°): Maximum +40 °C



Mounting in vertical format

Ambient temperature in the cabinet with vertical mounting:

- Vertical mounting (0° inclined): Maximum +40 °C
- Inclined mounting (inclined up to 35°): Maximum +35 °C



4.1.4 Checking clearances

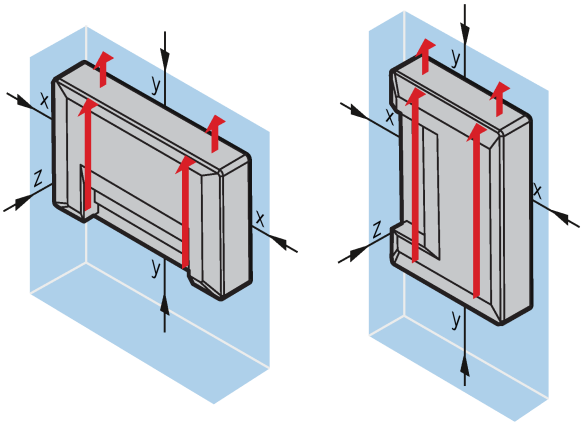
The following clearances are required around the HMI device to ensure adequate natural ventilation:

Required clearance around the HMI devices:

All dimensions in mm

	x	y	z
Smart Panels	15	50	10

To install the IoT module, leave 50 mm clearance on the IoT module slot side of the panel.



4.1.5 Making the mounting cutout

Note

Stability of the mounting cutout

The material in the area of the mounting cutout must provide sufficient strength to guarantee the lasting and safe mounting of the HMI device.

The force of the mounting clips or operation of the device may not lead to deformation of the material in order to achieve the degrees of protection described below.

Degrees of protection

The degrees of protection of the HMI device can only be guaranteed if the following requirements are met:

- In order to achieve IP65 protection degree, the material thickness for the mounting cutout should be: 2 mm to 6 mm
- Permitted deviation from plane at the mounting cutout: ≤ 0.5 mm

  This condition must be met for the mounted HMI device.
- Permitted surface roughness in the area of the seal: ≤ 120 µm (R_z 120)

Mounting compatibility

The mounting cutouts of the Smart panels are compatible with the mounting cutouts of the following SIMATIC HMI devices:

Mounting cutout Smart panel	Compatible with the mounting cutouts of the HMI device
Smart 700 IE V5	Smart 700, Smart 700 IE V2, Smart 700 IE V3, Smart 700 IE V4
Smart 1000 IE V5	Smart 1000, Smart 1000 IE V2, Smart 1000 IE V3, Smart 1000 IE V4
Smart Plus 700 IE	Smart 700, Smart 700 IE V2, Smart 700 IE V3, Smart 700 IE V4, Smart 700 IE V5
Smart Plus 1000 IE	Smart 1000, Smart 1000 IE V2, Smart 1000 IE V3, Smart 1000 IE V4, Smart 1000 IE V5

Dimensions of the mounting cutout

Dimensions of the mounting cutout for the Smart panel in horizontal mounting position:

	w^{+1}_{0}	h^{+1}_{0}
Smart Plus 700 IE	192	138
Smart Plus 1000 IE	259	201

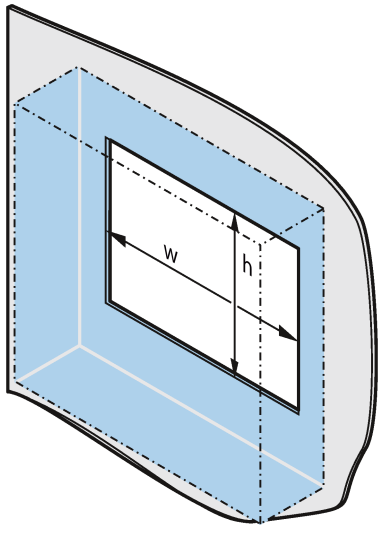
	w^{+1}_{0}	h^{+1}_{0}
Smart 700 IE	192	138
Smart 1000 IE	259	201

Dimensions of the mounting cutout for the Smart panel in vertical mounting position:

	w^{+1}_{0}	h^{+1}_{0}
Smart Plus 700 IE	138	192
Smart Plus 1000 IE	201	259

	w^{+1}_{0}	h^{+1}_{0}
Smart 700 IE	138	192
Smart 1000 IE	201	259

All dimensions in mm



9.6 Technical data

9.6.1 Smart panels and Smart Plus panels

The following table lists the product comparison information between Smart panels and Smart Plus panels:

Parameter category		**Smart IE V5**		**Smart Plus**	
		Smart 700 IE V5	**Smart 1000 IE V5**	**Smart Plus 700 IE**	**Smart Plus 1000 IE**
Order number		6AV6648-0EC11-3AX0	6AV6648-0EE11-3AX0	6AV6648-2AC11-3AX0	6AV6648-2AE11-3AX0
Weight (Weight without packaging**)**		562 g	994 g	568 g	1019.6 g
Display	Type	TFT-LCD			
	Active display area	153.84 x 85.63 mm	222.72 x 125.28 mm	153.84 x 85.63 mm	222.72 x 125.28 mm
	Resolution	800 x 480 pixels	1024 x 600 pixels	800 x 480 pixels	1024 x 600 pixels
	Possible colors	16M colors			
	Brightness control	Typical 350 cd/m²		Typical 450 cd/m²	
	Backlighting Half Brightness Life Time (MTBF) MTBF: Operating hours after which the maximum brightness is reduced by half compared to the original value. MTBF is increased by using the integrated dimming function when the panel is at a lower brightness.	LED 20,000 h			
	Pixel error class in accordance with EN ISO 9241-307	II			
Input device type		Touch screen, analog resistive			
Memory	flash memory	256 MBytes		512 MBytes	
	Porgram memory	256 MBytes		256 MBytes	
Interfaces	1 x RS 422/485/232	RS 422/485: max. 187.5 Kbits/s; RS 232: max. 115.2 Kbits/s;			
	1 x Industrial Ethernet RJ45	10/100 Mbits/s, with auto-crossover			
	1 x USB 2.0	max. 500 mA			
	1 x micro SD card socket	max. 25 Mbits/s			

Parameter category			**Smart IE V5**		**Smart Plus**	
			Smart 700 IE V5	**Smart 1000 IE V5**	**Smart Plus 700 IE**	**Smart Plus 1000 IE**
Supply voltage	Rated voltage Permitted voltage range		+24 V DC 19.2 to 28.8 V (–20%, +20%)			
	Maximum permitted transients		35 V (500 ms)			
	Minimum time between two transients		50 s			
	Power consumption The power loss generally corresponds to the specified value for power consumption.		8.1 W	10.2 W	10.3 W	12.2 W
	Current consumption	Typical	Approx. 220 mA	Approx. 250 mA	Approx. 260 mA	Approx. 290 mA
		Maximum constant current	Approx. 420 mA	Approx. 530 mA	Approx. 540 mA	Approx. 635 mA
		Inrush current I^2t	Approx. 0.1 A^2s			
	Fuse, internal		Electronic			
Buffered real-time clock , can be synchronized **Note**: Typical buffer time: 3 years in the ambient temperature 25 °C; battery type: CR2032; battery rated voltage: 3 V; battery max. abnormal charging current: 10 mA.			YES			
Acoustic feedback			YES			
Storage temperature			–20 °C to +60 °C			
Operating temperature	Temperature, device in landscape format	Vertical installation	0 °C to 50 °C			
		Inclined installation up to 35°	0 °C to 40 °C			
	Temperature, device in portrait format	Vertical installation	0 °C to 40 °C			
		Inclined installation up to 35°	0 °C to 35 °C			
Panel size (mm): wide x height			209.39 x 155.38	276 x 218	209.39 x 155.38	276 x 218
Mounting cutout size (mm) wide x height		Horizontal mounting position	192 x 138	259 x 201	192 x 138	259 x 201
		Vertical mounting position	138 x 192	201 x 259	138 x 192	201 x 259