

# DATASHEET

**EXOR**

ZB4-505-IF2

**OTHER SYMBOLS:**

ZB4505IF2, ZB4505 IF2, ZB4505-IF2, ZB4 505IF2, ZB4 505 IF2, ZB4 505-IF2, ZB4-505IF2, ZB4-505 IF2,  
ZB4-505-IF2

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# MI4 - Operator Panel : Engineering



# MI4 - Operator Panel : *Engineering*

## **Overview**

- MI4 Text Operator Panel
- MI4 Graphic Operator Panel
- MI4 Touch Operator Panel
  
- Communication modules
- Accessories
  
- MI4-CFG-1 Engineering software
  
- Appendix

# **MI4 - Operator Panel : *Engineering***

## **Overview**

- ***MI4 Text Operator Panel***

# MI4 - Text Operator Panel - Display



**MI4-110-KC1**



**MI4-110-KG1  
[ MI4-110-KG2 ]**



**MI4-140-KI1  
[ MI4-140-KJ1 ]**



**MI4-140-KF1**

<b>Display</b>	LCD monochrome			
<b>Background lighting</b>	LED (Life span > 10 years)			
<b>Contrast setting</b>	Yes (via SYSTEM menu or functions in keypad macro editor)			
<b>Number of colours</b>	- (black / white)			
<b>Lines x columns</b>	4 x 20	4 x 20	8 x 40	8 x 20
<b>Resolution</b>	120 x 32 pixels	120 x 32 pixels	240 x 64 pixels	240 x 32 pixels
<b>Display dimensions</b>	70 x 21	70 x 21	127 x 34	66 x 33
<b>Further features</b>	Graphic capability (monochrome Bitmaps), scalable Fonts (4 steps), user definable characters (max. 256)			



# MI4 - Text Operator Panel - Keypad



	MI4-110-KC1	MI4-110-KG1 [ MI4-110-KG2 ]	MI4-140-KI1 [ MI4-140-KJ1 ]	MI4-140-KF1
<b>Keys, total</b>	11	35	47	27
<b>Keys, programmable</b>	11	35	46 (Shift key not programmable)	27
<b>Function keys (F-keys)</b>	4	12	23 (Double function via Shift key)	9
<b>Cursor keys</b>	4	4 + 5	4 + 5	4
<b>Number block</b>	No (Input of values via cursor keys possible)	10 + 2	10 + 2	10 + 2
<b>Other keys</b>	Help, Clear, Enter	Clear, Enter	Shift, Clear, Enter	Clear, Enter
<b>Peculiarities</b>	-	-	[ a ) ]	b)

a) Prepared for the installation of electromechanical operator units (6 x 16 mm and 1 x 22 mm diameter).

The foil must only be opened with a knife, drilling of the rear plastic enclosure is no longer required.

b) Emergency-stop switch and 2 deadman switches already installed and prewired.

# MI4 - Text Operator Panel - LED, Memory



	<b>MI4-110-KC1</b>	<b>MI4-110-KG1 [ MI4-110-KG2 ]</b>	<b>MI4-140-KI1 [ MI4-140-KJ1 ]</b>	<b>MI4-140-KF1</b>
<b>User LEDs, total</b>	4	12	24 [ 32 ]	21
<b>Project memory (Flash)</b>	512 kB			
<b>Recipe (batch) memory</b>	No	16 kB [ No ]	16 kB	16 kB
<b>Project memory extension</b>	No	512 kB	512 kB	No



# MI4 - Text Operator Panel - Interfaces



**MI4-110-KC1**



**MI4-110-KG1  
[ MI4-110-KG2 ]**



**MI4-140-KI1  
[ MI4-140-KJ1 ]**



**MI4-140-KF1**

**PLC-PORT**  
(combined RS232/ RS485 interface)

1

**PC / Printer PORT**  
(RS232 interface)

Not available

1  
[Not available]

1

1

**AUX PORT**  
(Interface for optional field bus communication module)

1

1

1

1  
(Warning, only determined field bus communication modules can be used !)

**Engineering via**

PLC PORT

PC/Printer PORT  
[ PLC-PORT ]

PC/Printer PORT

PC/Printer PORT

**SUCOM-A via**

PLC PORT

**Printer connection via**

Not available

PC/Printer PORT  
[Not available]

PC/Printer PORT

PC/Printer PORT

# MI4 - Text Operator Panel - Further Features



	<b>MI4-110-KC1</b>	<b>MI4-110-KG1 [ MI4-110-KG2 ]</b>	<b>MI4-140-KI1 [ MI4-140-KJ1 ]</b>	<b>MI4-140-KF1</b>
<b>Battery</b>	No	1 [ No ]	1	1
<b>Real-time clock</b>	Yes, but not battery buffered	Yes [Yes, but not battery buffered]	Yes	Yes
<b>Password protect.</b>	Yes			
<b>Number of alarm messages</b>	256	1024 [ 256 ]	1024	1024
<b>Number of history alarm messages</b>	0	256 [ 0 ]	256	256

# MI4 - Text Operator Panel - Dimensions and Weights



	MI4-110-KC1	MI4-110-KG1 [ MI4-110-KG2 ]	MI4-140-KI1 [ MI4-140-KJ1 ]	MI4-140-KF1
<b>Dimensions W x H x D in mm</b>	149 x 109 x 60	141 x 176 x 76	220 x 176 x 71 [275 x 220 x 77]	116 x 239 x 102
<b>Weight in kg</b>	1.0	1.1	2.0	1.5 (incl. cable)
<b>Rated voltage U<sub>e</sub></b>	24 V DC	24 V DC	24 V DC	24 V DC
<b>Permissible range</b>	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC
<b>Rated current I<sub>e</sub></b>	250 mA	300 mA	400 mA	300 mA
<b>Fuse</b>	Electronic	Electronic	Electronic	Electronic
<b>Connection cross-section</b>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup> (open cable end)

# MI4 - Text Operator Panel - Limit Values



**MI4-110-KC1**



**MI4-110-KG1  
[ MI4-110-KG2 ]**



**MI4-140-KI1  
[ MI4-140-KJ1 ]**



**MI4-140-KF1**

<b>Ambient temperature</b>	0 to +50 °C
<b>Storage temp.</b>	-20 to +70 °C
<b>Degree of protection, front</b>	IP 65
<b>Keypad reliability</b>	> 3.000.000 switch operations
<b>Standards</b>	IEC/EN 61131-2 EN 50178
<b>Approvals</b>	UL / CSA (MI4-140-KF1: in preparation)

# MI4 - Operator Panel : *Engineering*

## **Overview**

- MI4 Text Operator Panel
- ***MI4 Graphic Operator Panel***



# MI4 - Graphic Operator Panel - Display



**MI4-150-KI1**



**MI4-450-KI1**



**MI4-170-KH1**



**MI4-470-KH1**



**MI4-570-KH1**

<b>Display</b>	LCD STN	LCD STN	LCD STN	LCD STN	LCD TFT
<b>Background display</b>	CCFL				
<b>Contrast setting</b>	Yes (via functions in keypad macro editor)				No
<b>Number of colours</b>	Black/white	16	Black/white	16	256
<b>Lines x columns</b>	16 x 40	16 x 40	30 x 80	30 x 80	30 x 80
<b>Resolution</b>	320x240 pixels	320x240 pixels	640x480 pixels	640x480 pixels	640x480 pixels
<b>Display dimensions</b>	121 x 91 / 5.6 "	121 x 91 / 5.6 "	194 x 146 / 9.6 "	212 x 159 / 10.4 "	212 x 159 / 10.4 "
<b>Further features</b>	Graphic capability (monochrome / colour Bitmaps), scalable Fonts (4 steps), user definable characters (max. 256), True-Type-Fonts in objects				



# MI4 - Graphic Operator Panel - Keypad



**MI4-150-KI1**



**MI4-450-KI1**



**MI4-170-KH1**



**MI4-470-KH1**



**MI4-570-KH1**

<b>Keys, total</b>	57	57	50	50	50
<b>Keys, programmable</b>	56 (Shift key not programmable)	56 (Shift key not programmable)			
<b>Function keys (F-keys)</b>	23 + 10	23 + 10			
<b>Cursor keys</b>	4 + 5				
<b>Number block</b>	10 + 2				
<b>Other keys</b>	Clear, Enter	Clear, Enter			
<b>Peculiarities</b>	a)	a)			

a) 10 function keys beside the display, permanently inscribed with F24 to F33.

# MI4 - Graphic Operator Panel - LED, Memory



**MI4-150-KI1**



**MI4-450-KI1**



**MI4-170-KH1**



**MI4-470-KH1**



**MI4-570-KH1**

**User LEDs, total**

24

24

**Project memory  
(Flash)**

8 MB  
(SSFDC card)

**Recipe (batch)  
memory**

32 kB

**Project memory  
extension**

No

Remark: SSFDC - Sony Smart Floppy Disc Card , also known as a Smart Media Card.

# MI4 - Graphic Operator Panel - Interfaces



**MI4-150-KI1**



**MI4-450-KI1**



**MI4-170-KH1**



**MI4-470-KH1**



**MI4-570-KH1**

**PLC-PORT**  
(combined RS232/RS485 interface)

1

**PC / Printer PORT**  
(RS232 interface)

1

**AUX-PORT**  
(Interface for optional field bus communication module)

1

**Engineering via**

PC/Printer PORT

**SUCOM-A via**

PLC PORT

**Printer connection via**

PC/Printer PORT

# MI4 - Graphic Operator Panel - Further Features



**MI4-150-KI1**



**MI4-450-KI1**



**MI4-170-KH1**








**MI4-470-KH1**



**MI4-570-KH1**

<b>Battery</b>	1
<b>Real-time clock</b>	Yes
<b>Password protection</b>	Yes
<b>Number of alarm messages</b>	1024
<b>Number of history alarm messages</b>	1024
<b>Screen saver</b>	Yes

# MI4 - Graphic Operator Panel - Dimensions and Weights

					
	<b>MI4-150-KI1</b>	<b>MI4-450-KI1</b>	<b>MI4-170-KH1</b>	<b>MI4-470-KH1</b>	<b>MI4-570-KH1</b>
<b>Dimensions W x H x D in mm</b>	275 x 220 x 80	275 x 220 x 80			
<b>Weight in kg</b>	1.9	1.9			
<b>Rated voltage U<sub>e</sub></b>	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
<b>Permissible range</b>	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC
<b>Rated current I<sub>e</sub></b>	600 mA	600 mA			
<b>Fuse</b>	2 A slow-blow	2 A slow-blow	Electronic	Electronic	Electronic
<b>Connection cross-section</b>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>

# MI4 - Graphic Operator Panel - Limit Values



**MI4-150-KI1**



**MI4-450-KI1**



**MI4-170-KH1**



**MI4-470-KH1**



**MI4-570-KH1**

<b>Ambient temperature</b>	0 to +50 °C
<b>Storage temp.</b>	-20 to +70 °C
<b>Degree of protection, front</b>	IP 65
<b>Keypad reliability</b>	> 3.000.000 switch operations
<b>Standards</b>	IEC/EN 61131-2 EN 50178
<b>Approvals</b>	UL / CSA (MI4-170/-470/-570-KH1: in preparation)



# MI4 - Operator Panel : *Engineering*

## **Overview**

- MI4 Text Operator Panel
- MI4 Graphic Operator Panel
- ***MI4 Touch Operator Panel***

# MI4 - Touch Operator Panel - Display



**MI4-150-TA1**  
[MI4-450-TA1]  
{MI4-550-TA1}

**MI4-160-TA1**

**MI4-470-TA1**  
[MI4-570-TA1]

**MI4-580-TA1**

**MI4-590-TA1**

<b>Display</b>	LCD STN mono [LCD STN colour] {LCD TFT}	LCD STN mono	LCD STN colour [LCD TFT]	LCD TFT	LCD TFT
<b>Background lighting</b>	CCFL				
<b>Contrast setting</b>	Yes, with STN devices (via keypad macro editor). All devices temperature compensated.				
<b>Number of colours</b>	Black/white [ 16 ] { 256 }	Black/white	16 [ 256 ]	256	256
<b>Lines x columns</b>	16 x 40	30 x 80	30 x 80	40 x 100	48 x 128
<b>Resolution</b>	320 x 240 pixels	640 x 480 pixels	640 x 480 pixels	800 x 600 pixels	1024 x 768 pixels
<b>Display dimensions</b>	121 x 91 / 5.6 "	196 x 146 / 9.6 "	218 x 159 / 10.4 "	246 x 184 / 12.1 "	304 x 228 / 15.0 "
<b>Further features</b>	Graphic capability (monochrome Bitmaps), scalable Fonts (4 steps), user definable characters (max. 256)				

# MI4 - Touch Operator Panel - Touch, Memory



**MI4-150-TA1**  
**[MI4-450-TA1]**  
**{MI4-550-TA1}**



**MI4-160-TA1**



**MI4-470-TA1**  
**[MI4-570-TA1]**



**MI4-580-TA1**



**MI4-590-TA1**

<b>Touch technology</b>	Analogue resistive
<b>Number of touch objects</b>	The number can be calculated from the product of lines and columns, as each touch object must be at least one character in size (Status: MI4-CFG V2.0).
<b>Type of touch objects</b>	Panel key, Print key, ASCII characters, illuminated push-buttons, step switches, general command keys as well as direct value input
<b>Project memory (Flash)</b>	8 MB (SSFDC card)
<b>Recipe (batch) memory</b>	32 kB
<b>Project memory expansion</b>	No

Remark: SSFDC - Sony Smart Floppy Disc Card , also known as a Smart Media Card.

# MI4 - Touch Operator Panel - Interfaces



**MI4-150-TA1**  
**[MI4-450-TA1]**  
**{MI4-550-TA1}**



**MI4-160-TA1**



**MI4-470-TA1**  
**[MI4-570-TA1]**



**MI4-580-TA1**



**MI4-590-TA1**

**PLC PORT**  
(combined RS232/RS485 interface)

1

**PC / Printer PORT**  
(RS232 interface)

1

**AUX PORT**  
(Interface for optional field bus communication module)

1

**Engineering via**

PC/Printer PORT

**SUCOM-A via**

PLC PORT

**Printer connection via**

PC/Printer PORT

# MI4 - Touch Operator Panel - Further Features



**MI4-150-TA1**  
**[MI4-450-TA1]**  
**{MI4-550-TA1}**

**MI4-160-TA1**

**MI4-470-TA1**  
**[MI4-570-TA1]**

**MI4-580-TA1**

**MI4-590-TA1**

<b>Battery</b>	1
<b>Real-time clock</b>	Yes
<b>Password protection</b>	Yes
<b>Number of alarm messages</b>	1024
<b>Number of history alarm messages</b>	1024
<b>Screen saver</b>	Yes
<b>Buzzer</b>	Yes

# MI4 - Touch Operator Panel - Dimensions and Weights



**MI4-150-TA1**  
**[MI4-450-TA1]**  
**{MI4-550-TA1}**

**MI4-160-TA1**

**MI4-470-TA1**  
**[MI4-570-TA1]**

**MI4-580-TA1**

**MI4-590-TA1**

<b>Dimensions W x H x T in mm</b>	187 x 147 x 91	287 x 232 x 91	287 x 232 x 91	337 x 267 x 91	392x307x101
<b>Weight in kg</b>	1.4	2.25	2.25	2.85	3.85
<b>Rated voltage U<sub>e</sub></b>	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
<b>Permissible range</b>	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC	18 to 30 V DC
<b>Rated current I<sub>e</sub></b>	600 mA	600 mA	700 mA	800 mA	1200 mA
<b>Fuse</b>	Electronic	Electronic	Electronic	Electronic	Electronic
<b>Connection cross-section</b>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>



# MI4 - Touch Operator Panel - Limit Values



**MI4-150-TA1**  
**[MI4-450-TA1]**  
**{MI4-550-TA1}**



**MI4-160-TA1**



**MI4-470-TA1**  
**[MI4-570-TA1]**



**MI4-580-TA1**



**MI4-590-TA1**

<b>Ambient temperature</b>	0 to +45 °C
<b>Storage temp.</b>	-20 to +70 °C
<b>Degree of protection, front</b>	IP 65
<b>Touch reliability</b>	> 3.000.000 switch operations
<b>Standards</b>	IEC/EN 61131-2 EN 50178
<b>Approvals</b>	UL / CSA in preparation

# MI4 - Operator Panel : *Engineering*

## **Overview**

- MI4 Text Operator Panel
- MI4 Graphic Operator Panel
- MI4 Touch Operator Panel
- ***Communication modules***

# Communication Modules for Connection to the Field Bus



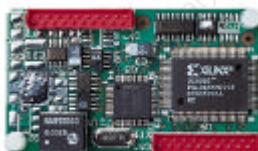
Suconet K  
ZB4-501-IF1 (187.5 kBaud and 375 kBaud)



PROFIBUS DP  
ZB4-504-IF1 (to 9600 Baud to 12 MBaud)  
ZB4-504-IF2 (to 9600 Baud to 1.5 MBaud)



Siemens MPI  
ZB4-505-IF1 (to 1.5 MBaud, with galvanic isolation)  
ZB4-505-IF2 (to 1.5 MBaud, without galvanic isolation)



Device Net  
ZB4-506-IF1



CAN Open  
ZB4-507-IF1

# Field Bus Connection - List of Drivers

## List of Drivers

MI4

PLC manufacturer	Protocol	Interface	Remark
Allen-Bradley	DeviceNet	ZB4-506-IF1	SLC500 <sup>1)</sup>
Allen-Bradley	PROFIBUS-DP	ZB4-504-IF1	SLC500 with PROFIBUS-DP Card <sup>1)</sup>
Moeller	Suconet K	ZB4-501-IF1	PS4 Series, PS416 Series <sup>1)</sup>
Moeller	SUCOM-A	on board	PS4 Series, PS416 Series
Moeller	PROFIBUS-DP	ZB4-504-IF1	LE4-504-BS1, PS416-NET-400 <sup>1)</sup>
Siemens	MPI	ZB4-505-IF1 or ZB4-505-IF2	S7-31x Series, S7-41x Series
Siemens	PROFIBUS-DP	ZB4-504-IF1	S7-CPU with PROFIBUS-DP Interface <sup>1)</sup>
Other manufacturer	PROFIBUS-DP	ZB4-504-IF1	General PROFIBUS-DP Driver
Other manufacturer	CANopen	ZB4-507-IF1	General CANopen Driver

<sup>1)</sup> Data handling block with Multiplex functionality available.

# MI4 - Operator Panel : *Engineering*

## **Overview**

- MI4 Text Operator Panel
- MI4 Graphic Operator Panel
- MI4 Touch Operator Panel
  
- Communication modules
- **Accessories**

## **MI4 - Accessories**

### MI4 Accessories List

	Description	Type
Memory module	512 kB Flash RAM for MI4-110-KG1/-KG2 and MI4-140-KI1/-KJ1	<b>ZB4-512-SF1</b> 200857
Memory card	8 MB (SSFDC) for all Graphic and Touch Operator Panels	<b>ZB4-908-SF1</b> 223100
Drive for memory card	For connection to a PC parallel port for quick project download	<b>ZB4-510-EG1</b> 230617
Bus terminating resistor	(Suconet K) Bus termination for the last last station on line, plug connector version	<b>ZB4-043-AD1</b> 203512
Battery	Spare battery for memory data backup	<b>ZB4-280-BT1</b> 203513
Insert labels	Insert labels free for user inscription for all MI4 devices except Touch Operator Panels, 10 off	<b>ZB4-301-BS2</b> 230610



## MI4 - Zubehör

### MI4 Accessories List

	Description	Type
Protective seals	for Touch Operator Panel 5.6" for MI4-150/450/550-TA1, 10 off	<b>ZB4-501-GZ3</b> 230611
Protective seals	for Touch Operator Panel 9.6" and 10.4" for MI4-160/470/570-TA1, 10 off	<b>ZB4-501-GZ4</b> 230612
Protective seals	for Touch Operator Panel 12.1" for MI4-580-TA1, 10 off	<b>ZB4-501-GZ5</b> 230613
Protective seals	for Touch Operator Panel 15" for MI4-590-TA1, 10 off	<b>ZB4-501-GZ6</b> 230614
Hook	Bracket for MI4-140-KF1	<b>ZB4-502-GZ1</b> 230615
Bracket type hook	Magnetic bracket for MI4-140-KF1	<b>ZB4-502-GZ2</b> 230616

# MI4 - Operator Panel : *Engineering*

## **Overview**

- MI4 Text Operator Panel
- MI4 Graphic Operator Panel
- MI4 Touch Operator Panel
- Communication modules
- Accessories
- ***MI4-CFG-1 Engineering software***

## **MI4-CFG-1 Engineering Software - General Characteristics**

- Display of system conditions and process variables via numeric data fields, bargraphs or text messages.
- Input of setpoint values via numeric data fields
- Display and storage of alarms with date and time (alarm list, event list [Fault history register] )
- Recipe processing and recipe memory (not MI4-110-KC1/-KG2)
- Real-time clock, battery buffered (not MI4-110-KC1/-KG2)
- Time synchronization (with PLC and/or other MI4) and further functions via RDA and mailbox
- Language switchover (activated via MI4 and/or PLC)
- Password protection (Assignment of up to 8 different access authorization levels)
- Support for a serial printer (not MI4-110-KC1/-KG2) for message print out, alarm list and fault history register printout
- Keypad macro editor
- Representation of Bitmaps and access to internal symbol library

## ***MI4-CFG-1 Engineering Software - New Characteristics of Version 2.0 (from June 2001)***

- Display of trend graphs with cursor and x-y zoom functions  
(only on Graphic and Touch Operator Panels)
- Display of analog instruments with simple to define parameters  
(only on Graphic and Touch Operator Panels)
- Modifiable min./max. limit variables via the PLC
- Modifiable scaling of variables via the PLC
- Extended project report
- Fast download of projects on SSFDC memory cards via the SSFDC drive which is available as an accessory

## ***MI4-CFG-1 Engineering Software - New Characteristics of Version 3.0 (from 4th Quarter 2001)***

- 32 Bit version with full support of the current functions under WIN 95/98/ME/NT/2000
- Online project overview
- Refined graphic symbol library with even more graphics, which can also be scaled
- Drafting of static objects (lines, circles, polygons) directly on the page
- Pixel related sizing and offset of objects

Engineering with older MI4 devices will still be possible. Projects which have been created with previous versions can still be processed.

# MI4 - Operator Panel : *Engineering*

## **Overview**

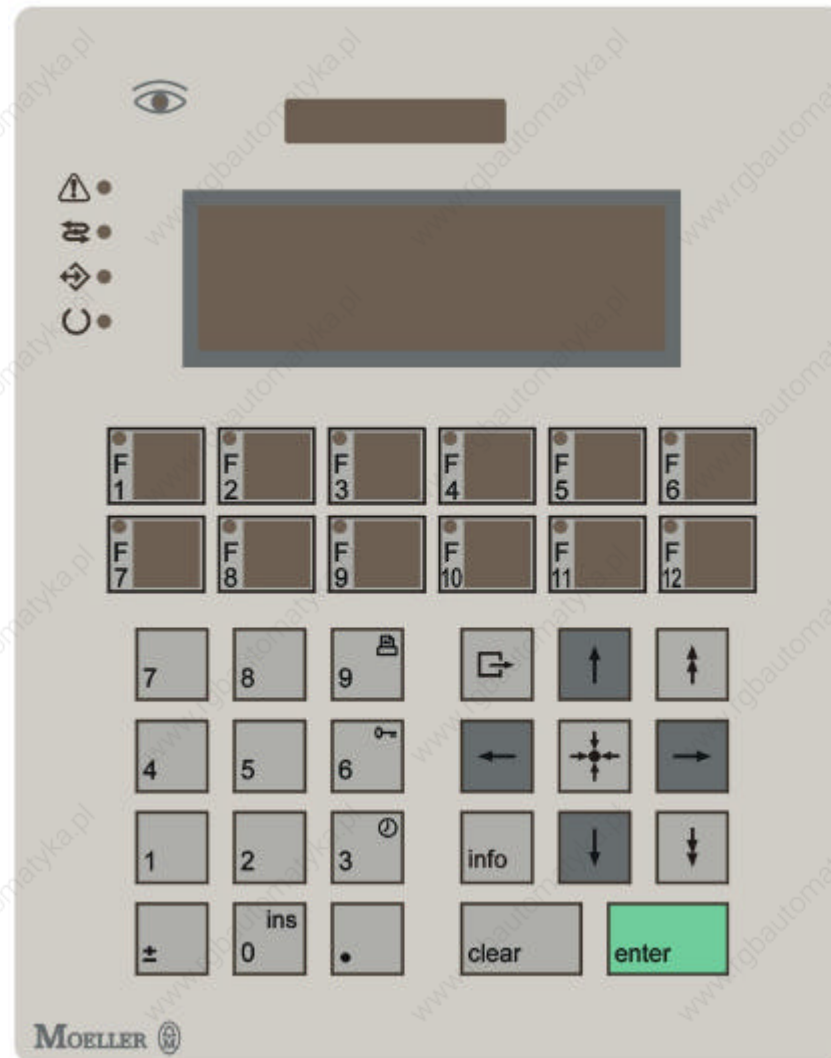
- MI4 Text Operator Panel
- MI4 Graphic Operator Panel
- MI4 Touch Operator Panel
  
- Communications module
- Accessories
  
- MI4-CFG-1 Engineering Software
  
- ***Appendix***



# MI4-110-KC1 - Keypad View



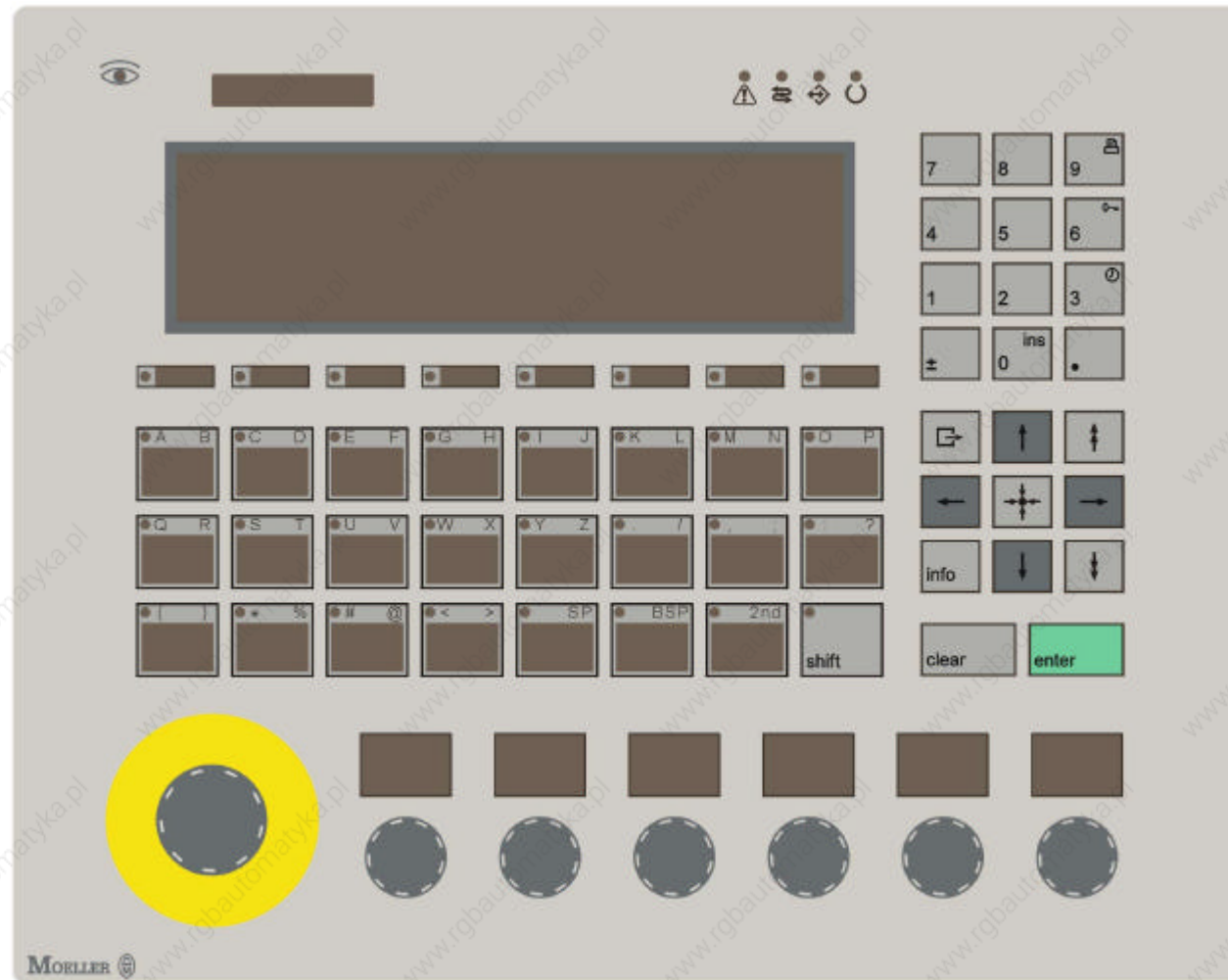
## MI4-110-KG1/2 - Keypad View



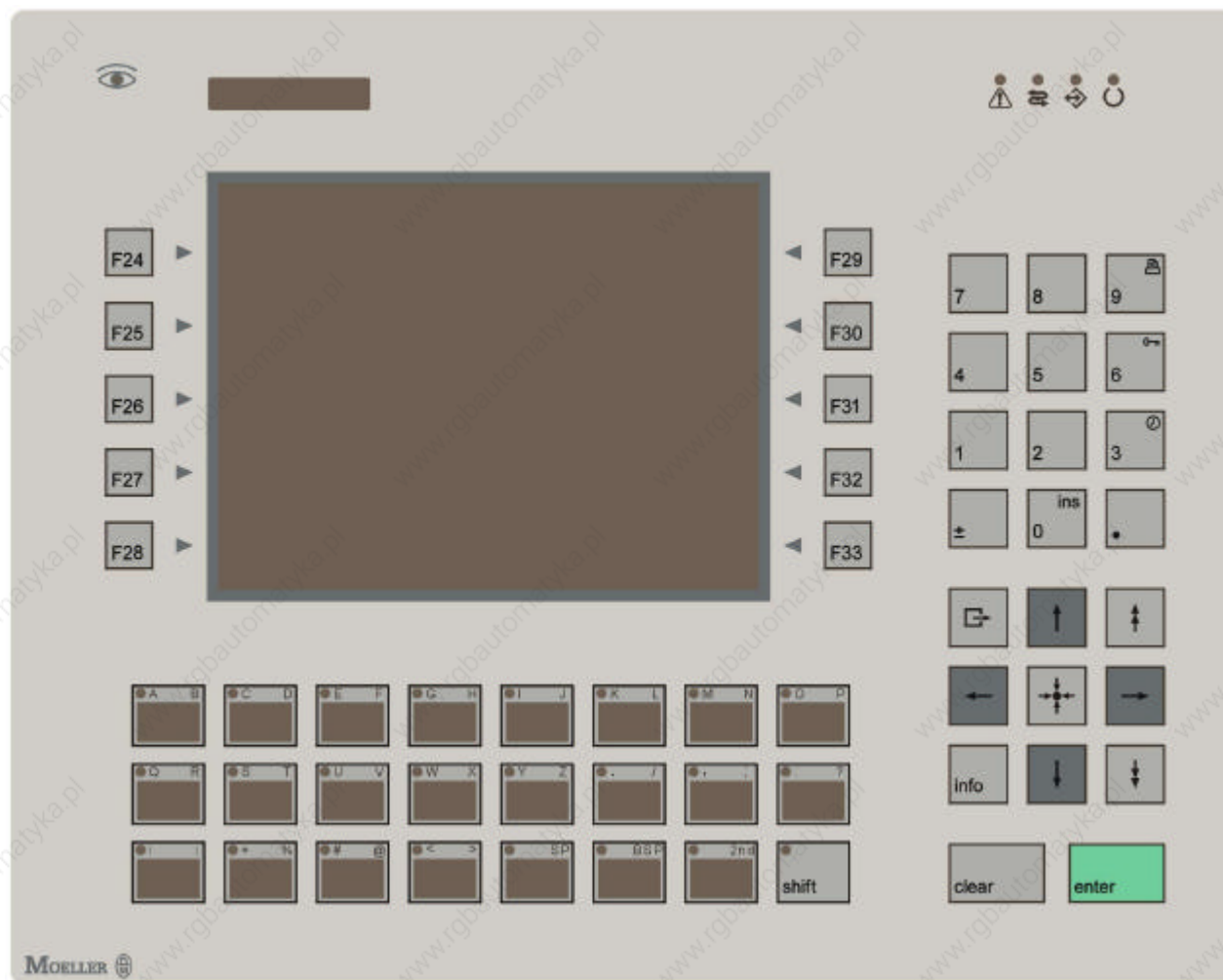
# MI4-140-KI1 - Keypad View



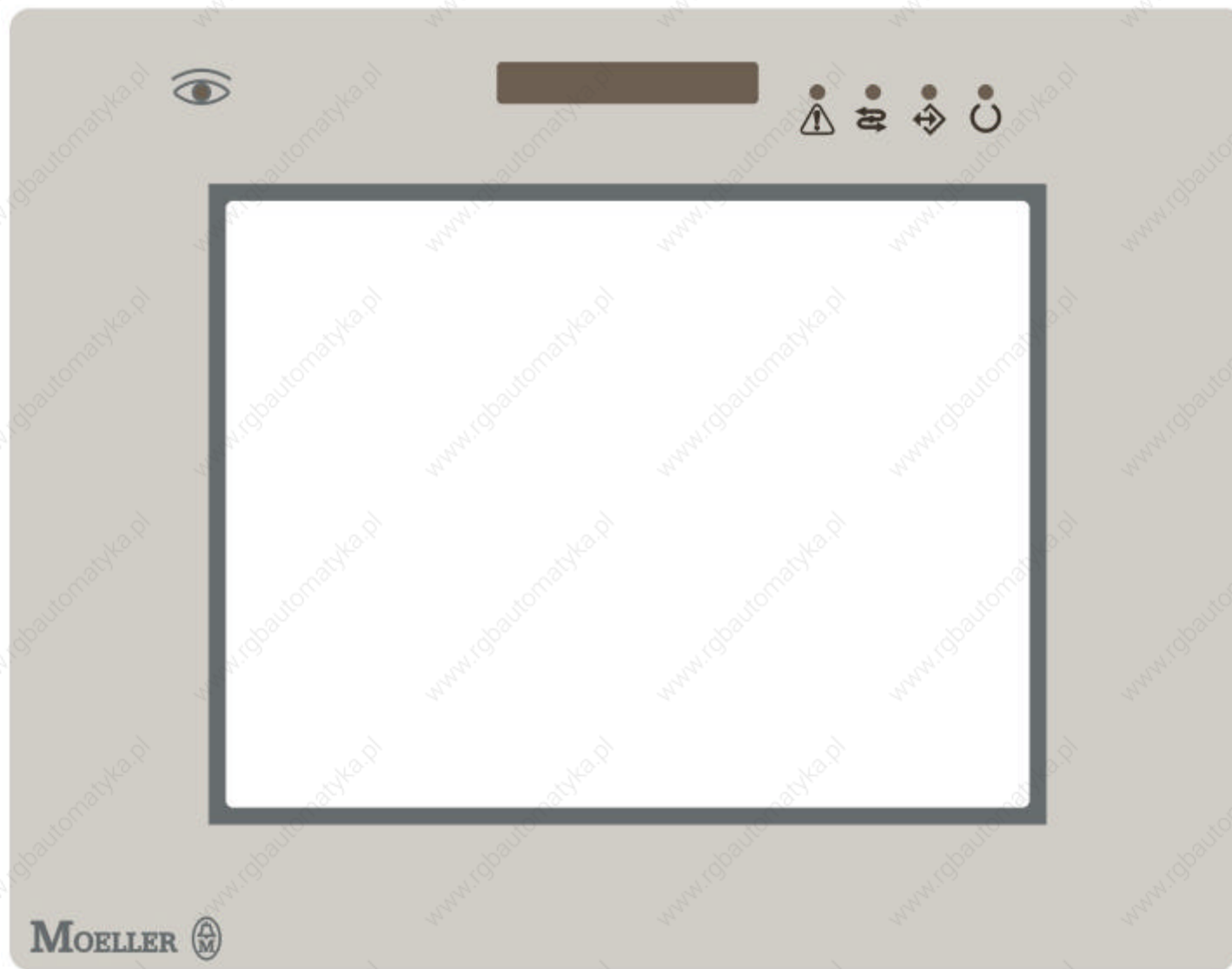
# MI4-140-KJ1 - Keypad View



# MI4-150/450-KI1 - Keypad View



## ***MI4-150/450/550-TA1 - Detailed View***





## ***MI4-xxx-yyy - Rear View***

