

Operator units FED, Front End Display

FESTO

- Display resolutions from 120 x 32 ... 1024 x 768 pixels
- Variants with text-based monochrome display and colour touchscreen
- Variants with integrated web browser
- Interfaces for PLC, PC, printer and Ethernet
- Simple designing with WYSIWYG editors
- Mains-independent real-time clock

Operator units FED, Front End Display

Key features

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Multifunctional in use

FED human-machine interfaces simplify the control of automation tasks at field level and set new standards in functionality and integration.

Whether for single- or multi-axis control systems in handling technology or process automation, the FED Front End Display is the optimum solution.

FED-40 to FED-90:

The semi-graphical display of process values makes them easier to read. Straightforward designing of human-machine dialogues using the FED Designer programming tool supplied.

FED-300 to FED-5010:

Graphics-capable for maximum flexibility when displaying processes and data. Straightforward designing of human-machine dialogues using the FED Designer programming tool supplied. With integrated web features that support the use of standards. Also with VipWin for convenient visualisation.

Text-based Front End Displays FED-40 to FED-90

The FED-40 and FED-60 versions complement the proven FED-50 and FED-90 for simple dialogues using 4-line text display and operating buttons whether via a serial, fieldbus or Ethernet connection – the text panels of the FED series are 100% compatible with Festo controllers.

The following functionalities are available depending on the variant:

- Serial interface (FED-40 to FED-90), optional Ethernet for use in a network (not with FED-40)
- Battery backup of the alarm and event data (not with FED-40)
- FED Designer graphical design tool included

- No parameterisation required; the software contains the controller data and detects the display
- Simple graphics possible, enabling scalable font size and simple representation of pictograms and bar charts
- Software for uploading projects
- Recipe handling
- Simple data acquisition

- Generous program memory
- Real-time clock (not with FED-40)
- Printer port (FED-90)
- Password protection
- Alarm handling
- Keypad can be easily programmed using macros
- Multilingual projects possible
- Importing and exporting of texts for translation

FED-40: the entry-level model

A serial connection is established with the controller. Operation is by means of four freely programmable function keys and seven system keys.

FED-50: fieldbus-capable

The FED-50 offers the functions of the FED-40 and can additionally be extended with an Ethernet or fieldbus interface. A real-time clock is standard on the FED-50 and higher.

FED-60: 10-key pad included

In addition to the function and system keys, the FED-60 also features a 10-key pad. The real-time clock is standard here also and a fieldbus interface can be optionally retrofitted.

FED-90: all-inclusive

The larger size in comparison with the FED-60 means the FED-90 can offer twelve function keys and 23 system keys. A printer interface permits direct output of the alarm and/or event list.

Operator units FED, Front End Display

Key features

Front End Displays with touchscreen FED-300 to FED-5010

The touchscreen displays FED-300 to FED-5010 with graphical user interface extend the proven text-based and key pad-equipped Front End Displays FED-40 to FED-90 to include touch-sensitive displays in sizes from 3.8"

to 15". As alternatives to CPX handhelds and integrated displays, these Front End Displays provide a freely definable user interface.

When used as browser or SCADA terminals, the new large-size touchscreen displays FED-710 to FED-5010 enable several subprocesses to be controlled on one display. VipWin software allows the functionality of the

Front End Displays to even be extended to a control and instrumentation system. Festo software tools such as VipWin or FST significantly reduce the time spent on designing.

Functions

- Can be connected to all FEC® units, serially or via Ethernet
- Trend display
- Recipe handling
- Multilingual projects and language changeover during the runtime
- Software enables uploading of projects
- Importing and exporting of texts for translation

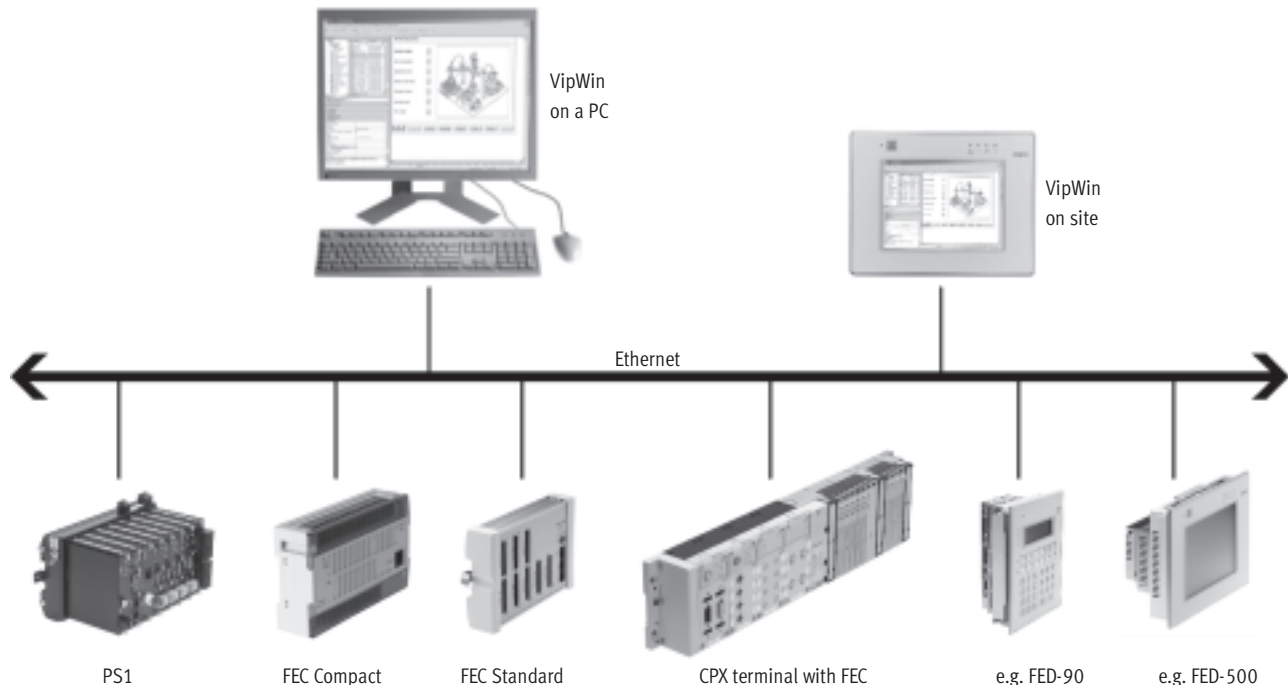
Designing

- Via Designer software for simple visualisation tasks
- As a client/server system: terminal receives data from web servers connected to it and displays this data using the integrated browser functionality
- As a VipWin terminal: integrated hardware and software package for a cost-effective solution to more comprehensive visualisation tasks within the system

Key features at a glance

- Quicker and easier commissioning; no programming required in the PLC program
- Convenient FED Designer WYSIWYG design tool
- No duplicate work thanks to importing of variable declarations (allocation list) from the control software
- Can also be used with Festo FEC® units in a network by means of Ethernet
- Graphics capability offers maximum flexibility when displaying processes and data
- Shorter designing periods thanks to reusability of objects (libraries containing graphical elements)
- Thanks to generous memory, almost unlimited number of graphics and texts can be displayed
- Display of complex processes is possible thanks to an unlimited number of variables per page
- Simple logging of all data through integrated printer port
- Extremely sturdy thanks to a metal housing to facilitate use in tough environments

The Front End Displays in the Festo controller landscape



Operator units FED, Front End Display

Product range overview, type codes

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Type	Display resolution	Number of colours	Display size	Interfaces	→ Page/Internet
Text-based					
FED-40	120x32 pixels	B/W	4x20 characters	PLC, PC	5
FED-50				PLC, PC, Ethernet ¹⁾	
FED-60				PLC, PC, Ethernet ¹⁾	
FED-90				PLC, PC, printer, Ethernet ¹⁾	
Touchscreen					
FED-300	1/4 VGA, 320x240 pixels	256	3.5"	PLC, PC, Ethernet ¹⁾	7
FED-301		B/W	3.8"		
FED-500		256	5.6"	PLC, PC, printer, Ethernet ¹⁾	
FED-501		8 grey levels	5.6"		
FED-700	VGA, 640x480 pixels	64k	7.5"	PLC, PC, printer, Ethernet ²⁾	
FED-1000			10.4"		
FED-2000	SVGA, 800x600 pixels	64k	12.1"	PLC, PC, printer, Ethernet ²⁾	
FED-5000	XGA, 1024x768 pixels	64k	15"		
Touchscreen, with integrated web browser					
FED-710	VGA, 640x480 pixels	64k	7.5"	PLC, USB, printer, Ethernet ²⁾	10
FED-1010			10.4"		
FED-2010	SVGA, 800x600 pixels	64k	12.1"	PLC, USB, printer, Ethernet ²⁾	
FED-5010	XGA, 1024x768 pixels	64k	15"	PLC, USB, printer, Ethernet ²⁾	

1) 10 MBd optional

2) 10/100 MBd standard, 2nd 10 MBd interface optional

Type codes

		FED	–	2010
Function				
FED	Operator unit			
Display size, equipment				
Text-based				
40	4x20 characters; equipment details ➔ Product range overview and Technical data			
50				
60				
90				
Touchscreen				
300	3.5", 256 colours			
301	3.8", B/W			
500	5.6", 256 colours			
501	5.6", 8 grey levels			
700	7.5", 64k colours			
1000	10.4", 64k colours			
2000	12.1", 64k colours			
5000	15", 64k colours			
Touchscreen, with integrated web browser				
710	7.5", 64k colours			
1010	10.4", 64k colours			
2010	12.1", 64k colours			
5010	15", 64k colours			

Operator units FED, Front End Display

Technical data – Text-based

-  - Voltage
18 ... 30 V DC
-  - Temperature range
0 ... 50 °C



General technical data				
	FED-40	FED-50	FED-60	FED-90
Display	Monochrome LCD with backlighting			
Display size	4x20 characters			
Display resolution	120x32 pixels			
Number of colours	–			
Number of function keys	4	4	9	12
Number of system keys	7	7	10	23
Number of user LEDs	5	5	10	13
Number of system LEDs	4	4	4	4
User memory	512 KB			
Recipe memory	–	16 KB	16 KB	16 KB
Event lists	–	256	256	256
Alarms	1,024			
Type of mounting	Front panel mounting			
Installation depth [mm]	53	53	53	71
Max. front panel thickness [mm]	5			

Electrical data					
		FED-40	FED-50	FED-60	FED-90
Nominal operating voltage	[V DC]	24			
Operating voltage range	[V DC]	18 ... 30			
Current consumption at nominal operating voltage	[A]	0.25			0.3
AUX interface		–	Sub-D socket, 9-pin		
Printer interface		–	–	–	Sub-D socket, 15-pin, RS232
Ethernet interface		–	Optional, 10 MBd		
PC interface		Sub-D plug, 15-pin, RS232			Sub-D socket, 15-pin, RS232
Programming interface		9.6 kBd	9.6 ... 38.4 kBd		
Programming software		FED Designer 6.06 or higher			
PLC interface		Sub-D plug, 15-pin, RS232			
Backup battery		–	3 V / 270 mA lithium		
Real-time clock		–	Yes		
Accuracy of real-time clock		–	130 s/month		
Protection class		IP65 on the front face following installation into control panel, IP20 on the back			

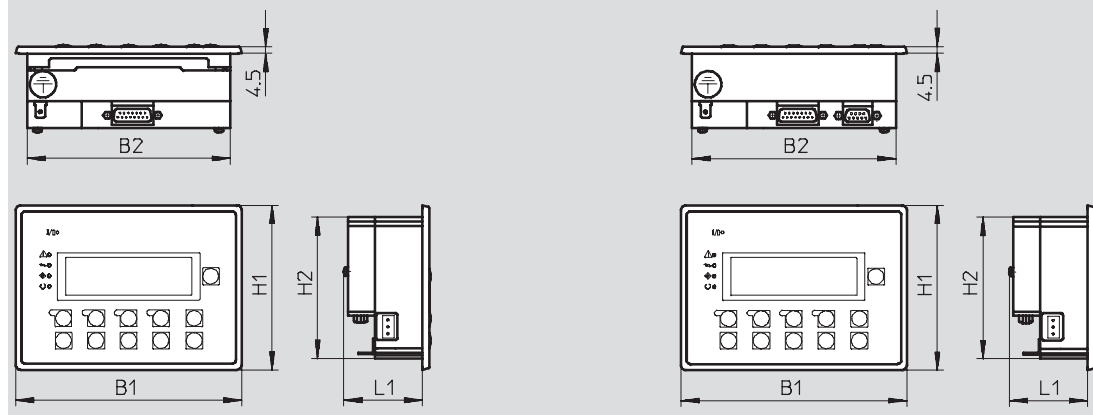
Operating and environmental conditions				
Ambient temperature [°C]	0 ... 50			
Storage temperature [°C]	–20 ... +70			
Relative air humidity [%]	5 ... 85, non-condensing			
CE mark (see declaration of conformity)	In accordance with EU EMC directive			
Certification	C-UL-US listed (HL)			
	C tick			

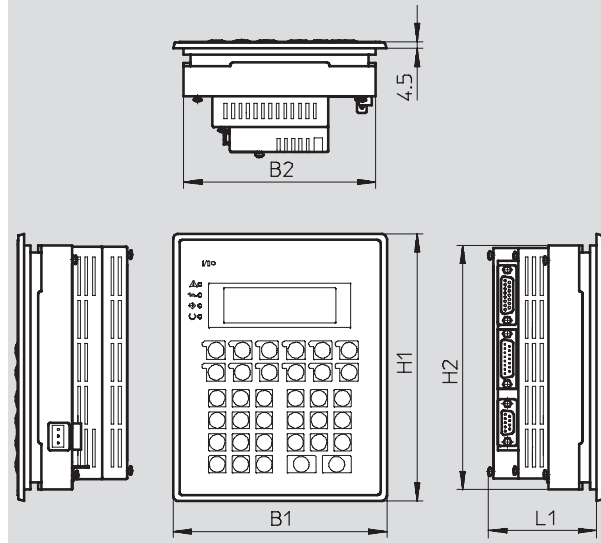
Operator units FED, Front End Display

Technical data – Text-based

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Weight [g]		FED-40	FED-50	FED-60	FED-90
Product weight	[g]	1,000	1,000	1,000	1,100

Dimensions		Download CAD data → www.festo.com	
FED-40	FED-50/60		
			

FED-90					
					

Type	B1	B2	H1	H2	L1
FED-40	149	134	108.5	93.5	52.5
FED-50					
FED-60					
FED-90	140.6	126.6	176	161	71

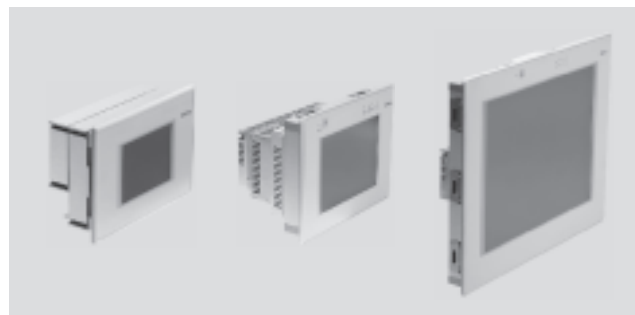
Ordering data						
Display resolution	Number of colours	Display size	Interfaces	Number of function/ system keys	Part No.	Type
120x32 pixels	B/W	4x20 characters	PLC, PC	4/7	541 998	FED-40
			PLC, PC, Ethernet ¹⁾	4/7	533 531	FED-50
			PLC, PC, Ethernet ¹⁾	9/10	541 999	FED-60
			PLC, PC, printer, Ethernet ¹⁾	12/23	533 532	FED-90

1) 10 MBd optional

Operator units FED, Front End Display

Technical data – Touchscreen

-  Voltage
18 ... 30 V DC
-  Temperature range
0 ... 50 °C



General technical data								
	FED-300	FED-301	FED-500	FED-501	FED-700	FED-1000	FED-2000	FED-5000
Type of display	Touchscreen							
Display	Colour TFT	Monochrome LCD	Colour STN	Monochrome LCD	Colour TFT			
Display size	3.5"	3.8"	5.6"	5.6"	7.5"	10.4"	12.1"	15"
Display resolution	1/4 VGA, 320x240 pixels				VGA, 640x480 pixels		SVGA, 800x600 pixels	XGA, 1024x768 pixels
Number of colours	256	B/W	256	8 grey levels	64k			
Number of function keys	–		1	1	1	1	1	1
Number of user LEDs	–		1	1	1	1	1	1
Number of system LEDs	4	4	4	4	4	4	4	4
User memory	1 MB	512 KB	32 MB					
Recipe memory	32 KB							
Event lists	256		1,024		1,024	1,024	1,024	1,024
Alarms	1,024							
Type of mounting	Front panel mounting							
Installation depth [mm]	56	61	91	66	71	91	91	101
Max. front panel thickness [mm]	5							

Electrical data										
		FED-300	FED-301	FED-500	FED-501	FED-700	FED-1000	FED-2000	FED-5000	
Nominal operating voltage	[V DC]	24								
Operating voltage range	[V DC]	18 ... 30								
Current consumption at nominal operating voltage	[A]	0.4		0.8	0.6	1.1	1.2	1.3	1.5	
AUX interface		Sub-D socket, 9-pin								
Printer interface		–		Sub-D socket, 15-pin, RS232						
Ethernet interface		Optional, 10 MBd				RJ45, 10/100 MBd 2nd Ethernet interface optional, 10 MBd				
PC interface		Sub-D plug, 15-pin, RS232		Sub-D socket, 15-pin, RS232						
Programming interface		9.6 ... 38.4 kBd								
Programming software		FED Designer 6.06 or higher								
PLC interface		Sub-D plug, 15-pin, RS232								
Backup battery		3 V / 270 mA lithium								
Real-time clock		Yes								
Accuracy of real-time clock		130 s/month								
Protection class		IP65 on the front face following installation into control panel, IP20 on the back								

Operator units FED, Front End Display

Technical data – Touchscreen

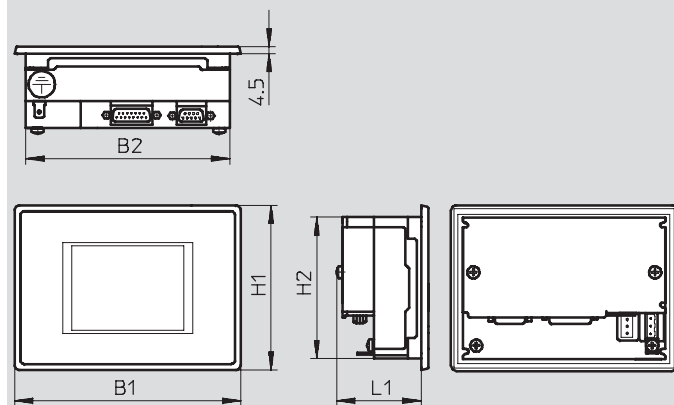
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Operating and environmental conditions								
	FED-300	FED-301	FED-500	FED-501	FED-700	FED-1000	FED-2000	FED-5000
Ambient temperature [°C]	0 ... 50		0 ... 45	0 ... 50	0 ... 45			
Storage temperature [°C]	−20 ... +70							
Relative air humidity [%]	5 ... 85, non-condensing							
CE mark (see declaration of conformity)	In accordance with EU EMC directive							
Certification	C-UL-US listed (OL)		C-UL-US listed (HL)		C-UL-US listed (OL)	C-UL-US listed (HL)	C-UL-US listed (HL)	C-UL-US listed (OL)
	C tick							

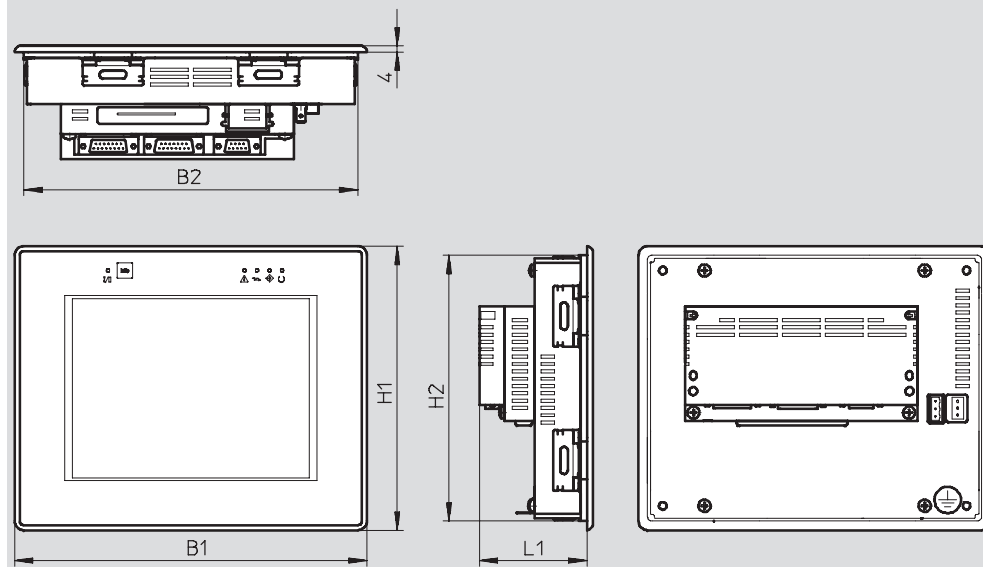
Weight [g]								
	FED-300	FED-301	FED-500	FED-501	FED-700	FED-1000	FED-2000	FED-5000
Product weight [g]	1,000		1,400		1,600	2,300	2,800	3,800

Dimensions Download CAD data → www.festo.com

FED-300/301



FED-700



Type	B1	B2	H1	H2	L1
FED-300	149	134	108.5	93.5	56
FED-301					60.5
FED-700	232	200	187	175	71

Operator units FED, Front End Display

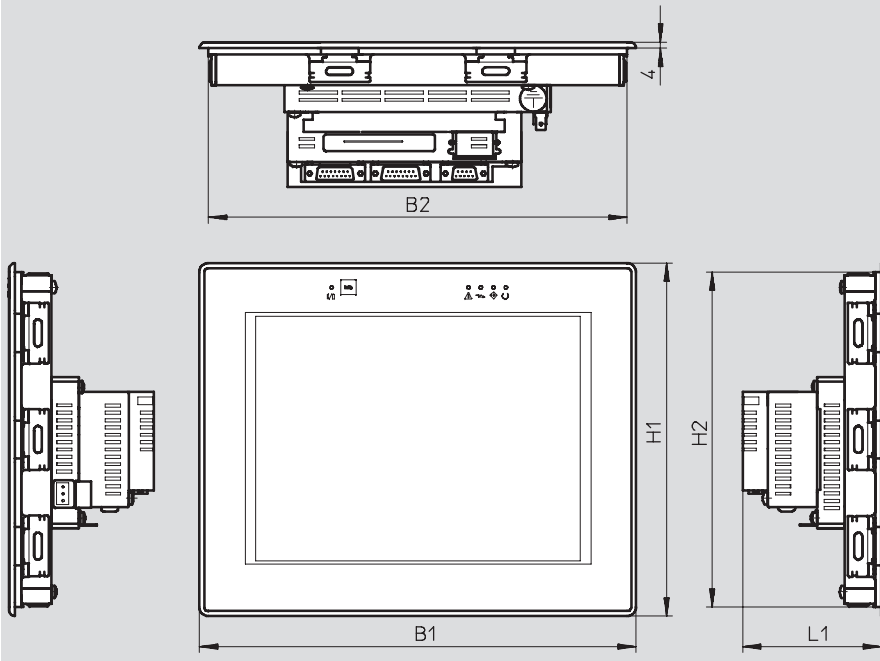
Technical data – Touchscreen

FESTO

Dimensions

Download CAD data → www.festo.com

FED-500/501/1000/2000/5000



Type	B1	B2	H1	H2	L1
FED-500	187	175	147	135	90.5
FED-501					66
FED-1000	287	275	232	220	91
FED-2000	337	325	267	255	91
FED-5000	392	380	307	295	101

Ordering data

Display resolution	Number of colours	Display size	Interfaces	Number of function/ system keys	Part No.	Type
1/4 VGA, 320x240 pixels	256	3.5"	PLC, PC, Ethernet ¹⁾	–/–	543 439	FED-300
	B/W	3.8"		–/–	543 438	FED-301
	256	5.6"	PLC, PC, printer, Ethernet ¹⁾	1/–	543 441	FED-500
	8 grey levels	5.6"		1/–	543 440	FED-501
VGA, 640x480 pixels	64k	7.5"	PLC, PC, printer, Ethernet ²⁾	1/–	543 442	FED-700
		10.4"		1/–	543 515	FED-1000
SVGA, 800x600 pixels	64k	12.1"	PLC, PC, printer, Ethernet ²⁾	1/–	543 444	FED-2000
XGA, 1024x768 pixels	64k	15"		1/–	543 447	FED-5000

1) 10 MBd optional

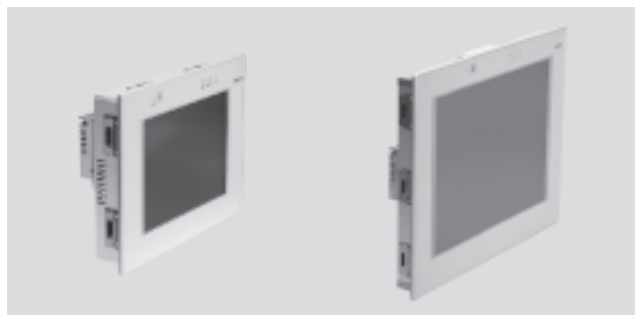
2) 10/100 MBd standard, 2nd 10 MBd interface optional

Operator units FED, Front End Display

Technical data – Touchscreen, with integrated web browser

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-  Voltage
18 ... 30 V DC
-  Temperature range
0 ... 45 °C



General technical data				
	FED-710	FED-1010	FED-2010	FED-5010
Type of display	Touchscreen			
Display	Colour TFT			
Display size	7.5"	10.4"	12.1"	15"
Display resolution	VGA, 640x480 pixels		SVGA, 800x600 pixels	XGA, 1024x768 pixels
Number of colours	64k			
User memory	32 MB			
Type of mounting	Front panel mounting			
Installation depth [mm]	71	91	91	101
Max. front panel thickness [mm]	5			

Electrical data				
	FED-710	FED-1010	FED-2010	FED-5010
Nominal operating voltage [V DC]	24			
Operating voltage range [V DC]	18 ... 30			
Current consumption at nominal operating voltage [A]	1.1	1.2	1.3	1.5
AUX interface	Sub-D socket, 9-pin			
Printer interface	Sub-D socket, 15-pin, RS232			
Ethernet interface	RJ45 10/100 MBd 2nd Ethernet interface optional, 10 MBd			
PLC interface	Sub-D plug, 15-pin, RS232			
USB interface	Yes			
Backup battery	3 V / 270 mA lithium			
Real-time clock	Yes			
Accuracy of real-time clock	130 s/month			
Protection class	IP65 on the front face following installation into control panel, IP20 on the back			

Operating and environmental conditions				
	FED-710	FED-1010	FED-2010	FED-5010
Ambient temperature [°C]	0 ... 45			
Storage temperature [°C]	-20 ... +70			
Relative air humidity [%]	5 ... 85, non-condensing			
CE mark (see declaration of conformity)	In accordance with EU EMC directive			
Certification	C-UL-US listed (OL) C tick	C-UL-US listed (HL)	C-UL-US listed (HL)	C-UL-US listed (OL)

Weight [g]				
	FED-700	FED-1000	FED-2000	FED-5000
Product weight [g]	1,600	2,250	2,850	3,800

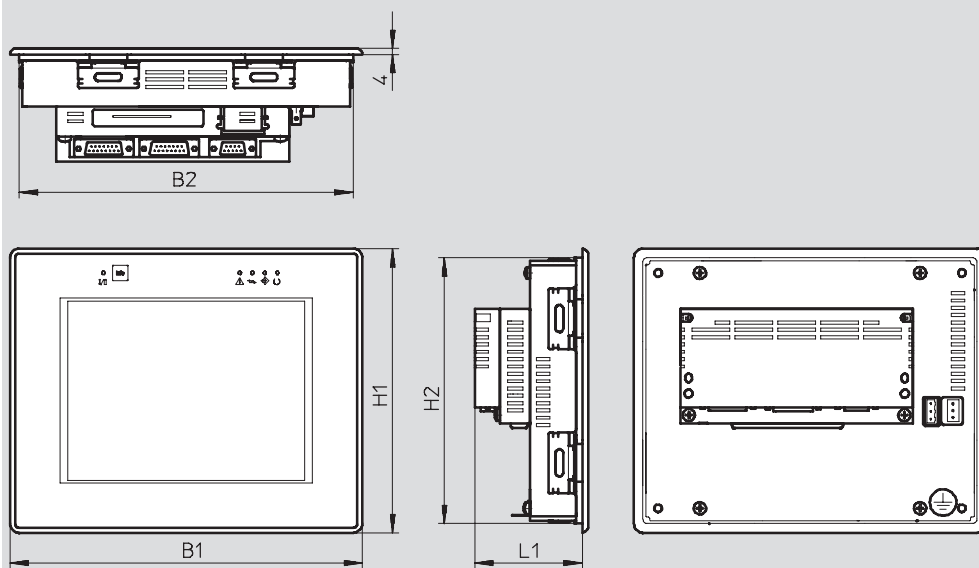
Operator units FED, Front End Display

Technical data – Touchscreen, with integrated web browser

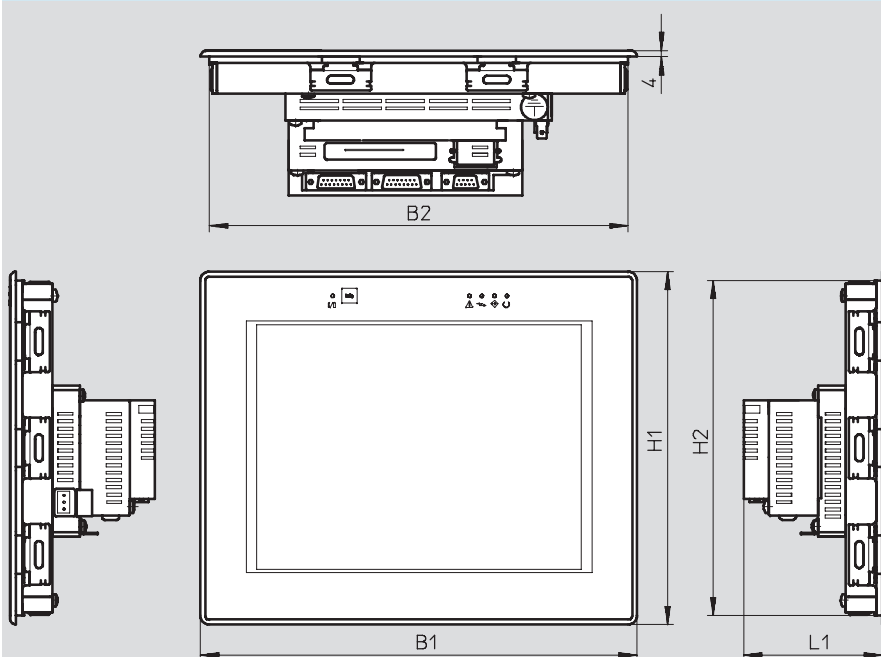
Dimensions

Download CAD data → www.festo.com

FED-710



FED-1010/2010/5010



Type	B1	B2	H1	H2	L1
FED-710	232	200	187	175	71
FED-1010	287	275	232	220	91
FED-2010	337	325	267	255	91
FED-5010	392	380	307	295	101

Operator units FED, Front End Display

Technical data

FESTO

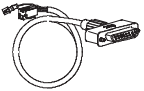
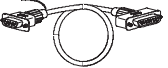
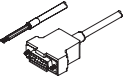
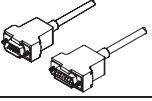
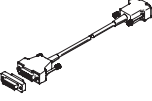
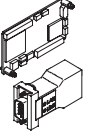
Ordering data						
Display resolution	Number of colours	Display size	Interfaces	Number of function/ system keys	Part No.	Type
VGA, 640x480 pixels	64k	7.5"	PLC, USB, printer, Ethernet ¹⁾	-/-	543 443	FED-710
		10.4"		-/-	543 516	FED-1010
SVGA, 800x600 pixels	64k	12.1"	PLC, USB, printer, Ethernet ¹⁾	-/-	543 445	FED-2010
XGA, 1024x768 pixels	64k	15"	PLC, USB, printer, Ethernet ¹⁾	-/-	543 448	FED-5010

1) 10/100 MBd standard, 2nd 10 MBd interface optional

Operator units FED, Front End Display

Accessories

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Ordering data			
	Description	Part No.	Type
	FEC (RJ11, COM) to FED cable FEC (RJ11, COM) to FED connecting cable	189 429	FEC-KBG3
	FEC (RJ12, COM and EXT) to FED cable	189 432	FEC-KBG6
	CPX-FEC to FED cable, 5 m long, for pairing with plug FBS-SUB-9-GS-1X9POL-B	539 642	FEC-KBG7
	Plug for pairing with cable FEC-KBG7 Fieldbus interface, Ethernet interface module for FED	534 497	FBS-SUB-9-GS-1X9POL-B
	CPX-FEC to FED cable, 2.5 m long	539 643	FEC-KBG8
	Programming cable Programming cable	533 534	FEDZ-PC
	Fieldbus interface, Ethernet interface module for FED (FST controller software)	533 533	FEDZ-IET
	Fieldbus interface, Ethernet TCP interface module for FED (CoDeSys controller software)	543 450	FEDZ-IET TCP
	Memory Fieldbus interface, Ethernet interface module for FED	543 514	FEDZ-MEM32