Device description

FSM42, FSM44 Front Switching Modules
For the maniual operation and display of the FieldBusModule FBM45

Application

The Front Switching Modules FSM42 or FSM44 are employed with the Automatic/Manual operation as well as for the display of the Field Bus Modules FBM45.
The output signals of the Field Bus Modules FBM45 in the range of 0..100 % (0..10 V DC) are activated in the stand-alone manual operation with the FSM42/FSM44. The output or input signals of the Field Bus Modules FBM45 are displayed at the assigned LED light bar display.
Only one FSM.. can be connected at a time to a FBM45. FSM42 or FSM44 form a functional unit with the FBM45.

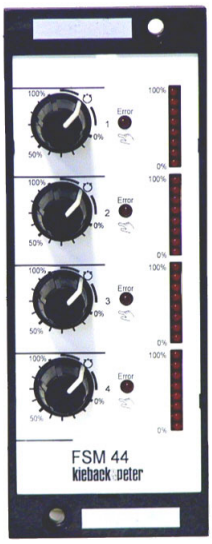

Fig. FSM44

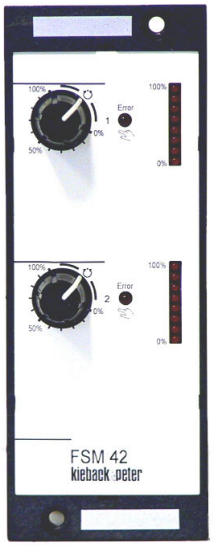

Fig. FSM42

Types

FSM42	Front Switching Modules with two drive channels and LED light bar display for driving the two output signals Y-out1/Y-out2 of the FBM45
FSM44	Front Switching Modules with four drive channels and LED light bar display for driving the four output signals Y-out1..4 of the FBM45

Technical data

Operation	Only in connection with the Field Bus Module FBM45
Operating voltage	12 V DC +20%/-10%, FSM42: 0.9 VA, FSM42: 1,7 VA Voltage supply obtained from the QBS interface
Connection	Terminal connection an QBS bus, max. 30 m
Operating elements	FSM42: Two Manual/Auto switch for automatic and manual operation 0..100% in 10 levels FSM44: Four Manual/Auto switch for automatic and manual operation 0..100% in 10 levels
Display	FSM42: Two LED light bar display (8-place) for FBM output signals Y-out1/Y-out2 or FBM input signals Y-in1/Y-in2 (switchable) Two LEDs ERROR/Manual for the error display of the FBM input signals Y-in1/Y-in2 > 11 V DC FSM44: Four LED light bar display (8-place) for FBM output signals Y-out1..4 or FBM input signals Y-in1..4 (switchable) Four LEDs ERROR/Manual for the error display of the FBM input signals Y-in1..4 > 11 V DC
Degree of enclosure protection	IP20
Environment temp.	0..45°C, not condensing
Weight	FSM42: 100 g, FSM44: 120 g
Accessories	WAS01 Wall Mounting Set for assembly

Measurements

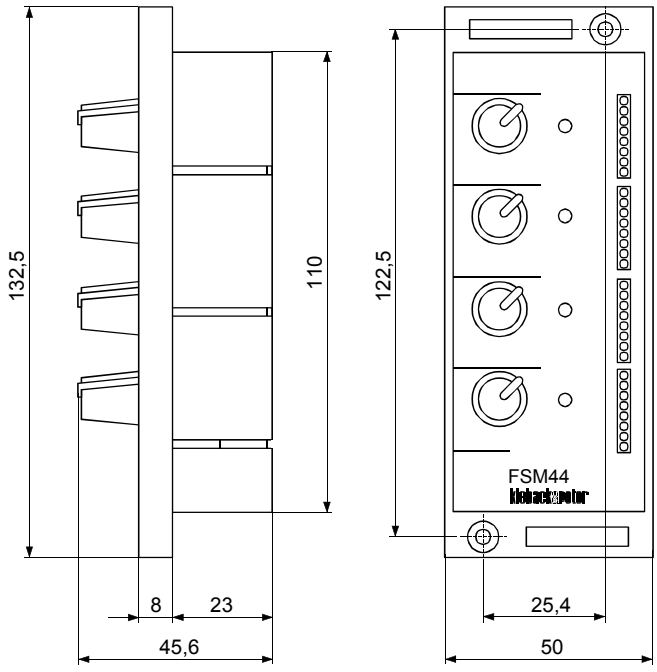

Figure shows FSM44,

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Device description

Mounting

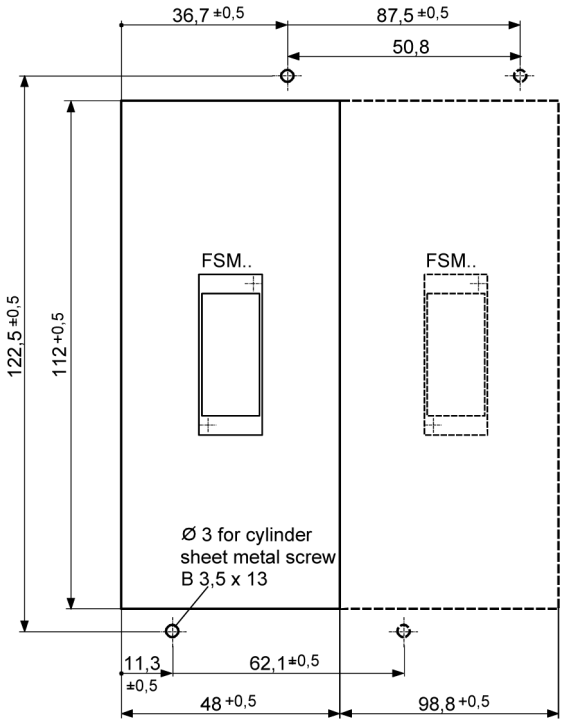
The Front Switching Modules FSM42/FSM44 can be installed in the switching panel door or in a 19“ cassette frame KA.

If it is desired, the Wall Mounting Set WAS01 is available as an accessory

Two screws for mounting in a 19“ cassette frame KA are provided.

Danger

Mounting in the switching panel or in a 19“ cassette frame may only be carried out by qualified and trained personnel on a switching cabinet which is current-free!!



Switching panel cut-out

Installation

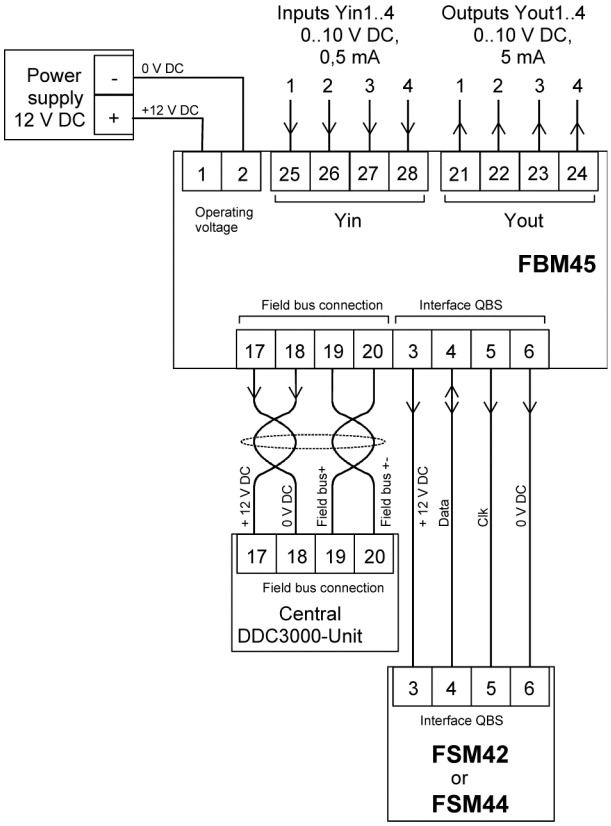
Danger

The electrical installation of the device connections in the switching panel may only be carried out by qualified and trained personnel, e.g. carried through by a trained electrician!

The VDE legal provisions and the local regulations must be maintained.

The Front Switching Modules FSM42 or FSM44 is connected to the QBS interface of the Field Bus Modules FBM45. The 4-wire control line QBS can have a max. length of 30 m.

Connection



Connection examples with servo-device connections can be found on page 4.

Device description

FrontSwitchingModule FSM42/FSM44
For the maniual operation and display of the FieldBusModule FBM45

Function/operation

The Front Switching Modules FSM42 have two channels for driving the Field Bus Module FBM45.
The Front Switching Modules FSM44 have four channels for driving the Field Bus Module FBM45.

- **Manual/Auto switch**
  The drive of the FBM45 with both Manual/Auto switches Automatic/Manual 0..100%.

  The Manual/Auto switch 1 is assigned to the output signal Y-out1 of the Field Bus Modules. ┐ FSM42
  The Manual/Auto switch 2 is assigned to the output signal Y-out2 of the Field Bus Modules. ┘
  The Manual/Auto switch 3 is assigned to the output signal Y-out3 of the Field Bus Modules. ┐ FSM44
  The Manual/Auto switch 4 is assigned to the output signal Y-out4 of the Field Bus Modules. ┘

- **LED light bar display**
  Next to every Manual/Auto switch there is an 8-place LED light bar display.
  These displays the FBM input signals Y-in or the FBM output signals Y-out.

  The selection of the signals Y-in or Y-out is done with the switch LED on the FBM45:

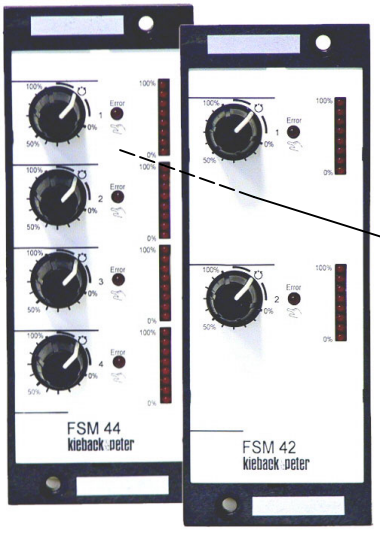
  LED switch setting : Y-out = FSM42: LED light bar display 1..2 for output signals Y-out1..2.
  FSM44: LED light bar display 1..4 for output signals Y-out1..4.
  Y-in = FSM42: LED light bar display 1..2 for input signals Y-in1..2.
  FSM44: LED light bar display 1..4 for input signals Y-in1..4.

  The individual LEDs in the 8-place light bar display are activated in the range 0..100 % (0..10 V DC) in steps of 12.5 % (1,25 V DC). The first LED lights up at 5 % (0.5 V DC), the eighth LED lights up for 95 % (9.5 V DC).

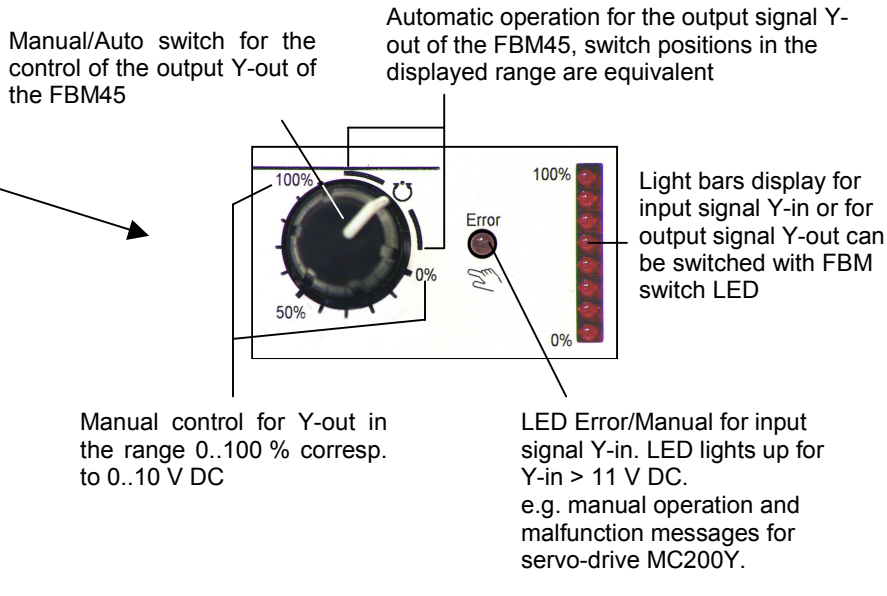
- **LED Error/Manual**
  Furthermore, an Error/Manual LED is located next to every Manual/Auto switch.
  The LEDs Error/Manual are activated by the FBM input signals Y-in and light up when the respective input signals Y-in exceeds 11 V DC, e.g. by the setting feedback of the servo-drives MC200Y for manual operation and malfunction message.

  LED Error/Manual 1: drive when Y-in1 > 11 V DC ┐ FSM42
  LED Error/Manual 2: drive when Y-in2 > 11 V DC ┘
  LED Error/Manual 3: drive when Y-in3 > 11 V DC ┐ FSM44
  LED Error/Manual 4: drive when Y-in4 > 11 V DC ┘

  These LED states are available to the DDC3000 system as linkable internal contacts.



Individual operating fields of the FSM42/FSM44



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FSM42, FSM44 Front Switching Modules
For the maniual operation and display of the FieldBusModule FBM45

Device description

Connection example 1

For servo-drive MC200Y with field bus control

The servo devices control is effected by parameterization in the DDC3000 Central Control Unit and is transmitted on the field bus to the FBM45.
The FBM45 causes the activation of the control device with 0..10 V DC on the terminals Y-out1..4 *(in the connection example terminal 21)*.

The zero-potential of the servo devices power supply 24 V AC and the FBM operating voltage 12 V DC are connected to each other.

FBM45 switch settings:

Address switch: valid field bus address

LED:	Y-in	(lower position)	display of the input signals Y-in to the FSM light bar display (setting feedback /malfunction message)
FSM:	42	(upper position)	for connected FSM42
	44	(lower position)	for connected FSM44
Y-out:		(upper position)	field bus control in the FSM automatic operation.

FSM functions

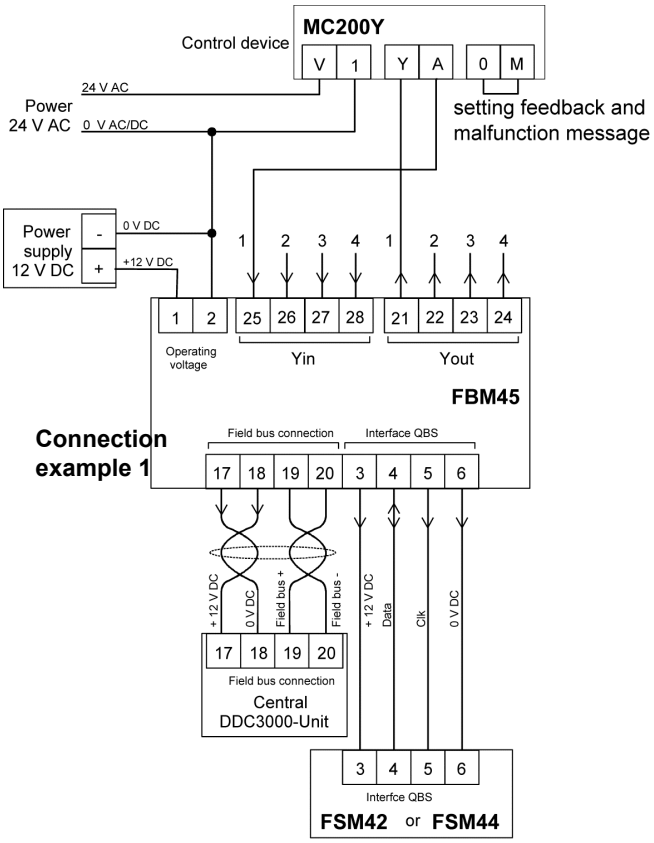
FSM44: The FBM45 outputs Y-out1..4 are assigned to the Manual/Auto switches 1..4
FSM42: The FBM45 outputs Y-out1..2 are assigned to the Manual/Auto switches 1..2.

In switch setting automatic, the servo-drive MC200Y is controlled over the field bus. For the switch settings 0..100%, the control device in the manual operation is activated, switch settings 0..100% corresponding to 0..100 % servo stroke.

Next to the Manual/Auto switches is an Error/Manual LED as well as a 8-place LED light bar display.

The current stroke position of the setting feedback can be read on the LED light bar display.

The LED Error/Manual lights up when the Manual/Automatic switch on the servo-drive MC200Y is switched to manual operation or a valve blockage has occurred, feedback signal > 11 V DC). Simultaneously, the LED light bar displays 100 %.



Connection example 2 for servo-drive MC50Y with FSM Automatic/Manual operation (without field bus control)

In this type of operation, the servo signal Y from the controller to the FBM45 input Y-in is connected *(in the connection example Y-in1, terminal 25)*.
The Front Switching Modules FSM are used for the manual setting of the servo-drives and controls the output signal Y-out *(in the connection example Y-out1, terminal 21 with Manual/Auto switch 1)*.

The zero-potential of the servo devices power supply 24 V AC and the FBM operating voltage 12 V DC are connected to each other.

FBM45 switch settings:

Address switch: 00 *(maintain default setting)*

LED:	Y-out	(upper position)	display of the output signals Y-out an the FSM light bar display.
FSM:	42	(upper position)	for connected FSM42
	44	(lower position)	for connected FSM44
Y-out:		(lower position)	inputs Y-in1..4 are assigned to Y-out1..4.

In switch setting Automatic, the servo-drive from the controller is activated. In the switch settings 0..100%, the control device of the FSM is activated. The light bar display shows the servo signal Y-out to the servo-drive.