

Device description

FSM12, FSM14 Front Switching Modules

Application

The Front Switching Modules FSM12 and FSM14 are employed for the manual operation or local priority operation of servo devices, which are activated with analog signals of 0..10 V DC. The signals 0..10 V DC of the regulator are connected to the inputs of the Front Switching Module, carried over the Manual/Auto switch and are made available as output signals 0..10 V DC to the connection on the servo devices.

The output signals are displayed by LEDs.

Every Manual/Auto switch have a contact output for feedback of the manual operation.

Types

FSM12 Front Switching Modules for the Automatic/Manual peration of two servo devices with an analog drive 0..10 V DC

FSM14 Front Switching Modules for the Automatic/Manual peration of four servo devices with an analog drive 0..10 V DC

Technical data

Operating voltage 12 V DC +20%/-10%,
 FSM12: 33 mA, 0.4 VA
 FSM14: 60 mA, 0.7 VA

Connection Terminal connection for lines max. 2.5 mm², connection terminals are pluggable

Inputs FSM12: Two analog signals Y1 and Y2, each 0..10 V DC, Ri > 1 MΩ
 FSM14: Four analog signals Y1..Y4, each 0..10 V DC, Ri > 1 MΩ

Outputs FSM12 Two analog signals Y1 and Y2, each 0..10 V DC, 5 mA
 Two contact outputs, max. 12 V DC, 100 mA for feedback of the manual operation
 FSM14: Four analog signals Y1..Y4, each 0..10 V DC, 5 mA
 Four contact outputs, max. 12 V DC, 100 mA for feedback of the manual operations

Operating elements FSM12: two Manual/Auto switch for automatic and manual operation ↓/↑/0..100%
 Two Setter for the continuous setting 0..100% of the output signals Y1 and Y2
 FSM14: Four Manual/Auto switch for automatic and manual operation ↓/↑/0..100%
 Four setter for the continuous setting 0..100% of the output signal Y1..Y4

Display FSM12: Two LEDs for the display of the output signals Y1 and Y2
 FSM14: Four LEDs for the display of the output signals Y1..Y4

Degree of enclosure protection IP20

Environmental conditions Temperature 0..45°C,
 Humidity 20..80% rF, not condensing

Weight FSM12: 100 g, FSM14: 120 g

Measurements

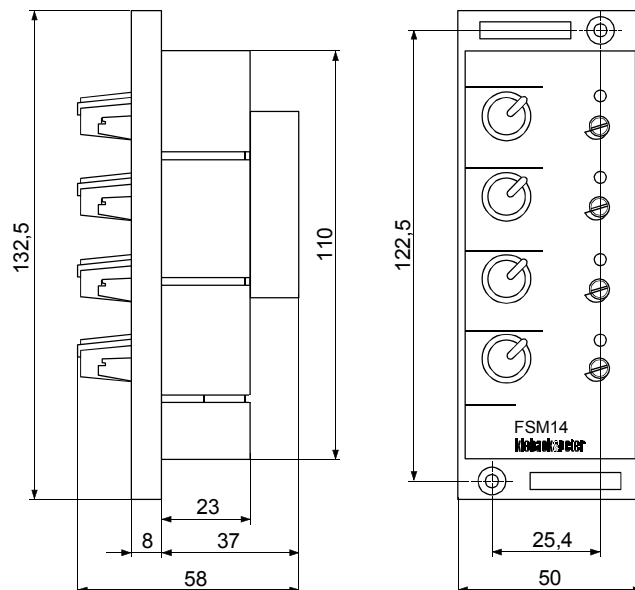


Abb. FSM12

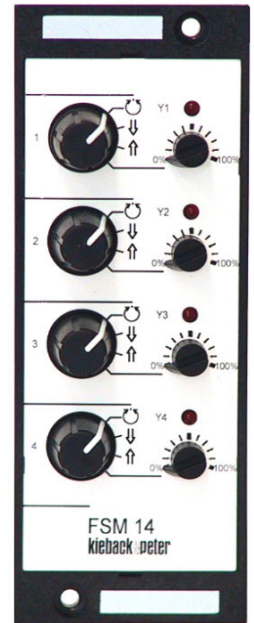


Abb. FSM14




Date 20.11.2002

Function /operation

The Front Switching Modules FSM12 have two channels for Automatic/Manual control of two servo devices with 0..10 V DC.

The Front Switching Modules FSM14 have four channels for Automatic/Manual control of four servo devices with 0..10 V DC.

• **Manual/Auto switch**

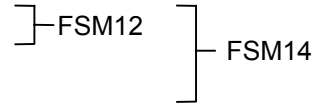
The servo devices drive via manual/Auto switches  /  /  0..100%.

The Manual/Auto switch 1 is assigned to the output signal Y1.

The Manual/Auto switch 2 is assigned to the output signal Y2.

The Manual/Auto switch 3 is assigned to the output signal Y3.

The Manual/Auto switch 4 is assigned to the output signal Y4.



• **Setter 0..100%**

Next to the switch positions 0..100% of every Manual/Auto switch a setting knob is located with which the output signal can be continuously set in the range from 0..100% = 0..10 V DC.

• **LED display**

A LED Y is located next to every Manual/Auto switch. The output signals are displayed here (LED dark: output signal Y = 0 V DC, LED greatest brightness: output signal Y = 10 V DC).

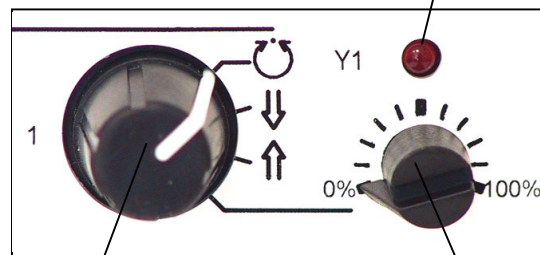
Operating field 1 of the FSM12/FSM14

(Operator fields 2..4 control the output signals Y2..Y4)







LED Y1

for the display of the output signal Y1,
LED dark: 0 V DC
LED greatest brightness: 10 V DC



Manual/Auto switch 1

With the switch positions:

-  Automatic operation, output signal Y1 corresponds to the input signal Y1.
-  Output signal Y1 is switched to 0 V DC.
-  Output signal Y1 is switched to 10 V DC.
-  Output signal Y1 kann be continuously adjusted with the setter next to it in the range 0..100% = 0..10 V DC.

Setter 0..100%

for the continuous setting of the output signal Y1 in the range 0..100% = 0..10 V DC.

Only active in the lower switching position of the Manual/Auto switch.



Every Manual/Auto switch has a common contact output as feedback contact for the three manual settings, max. load 12 V DC, 100 mA.
The contact output can be connected as a link in the DDC3000 system to the digital input of a Field Bus Modules, e.g. FBM14, FBM18 etc.

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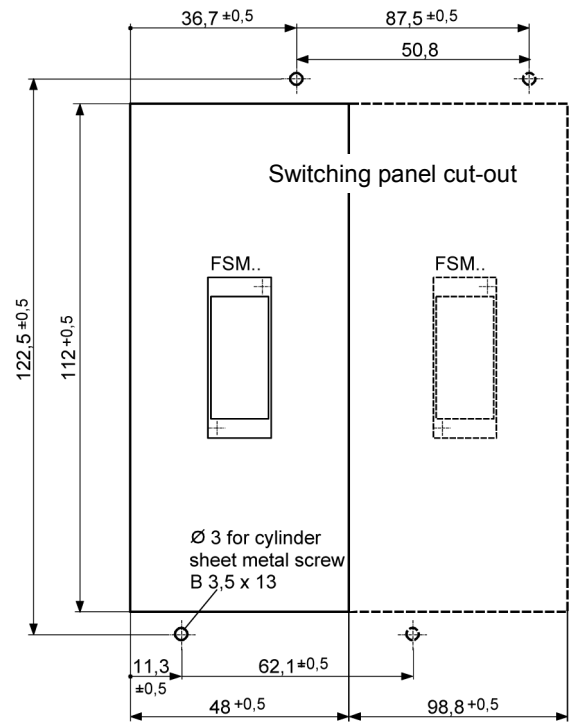
Mounting

The Front Switching Modules FSM12/FSM14 can be installed in the switching panel door or in a 19" cassette frame KA.

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



Mounting may only be carried out by qualified and trained personnel on a switching cabinet which is current-free!!



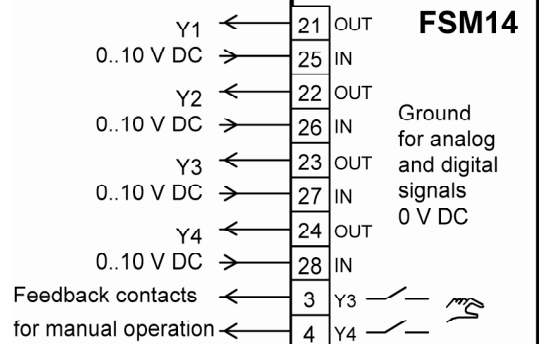
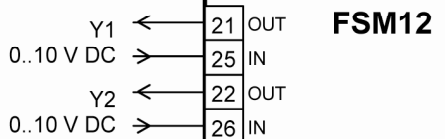
Installation



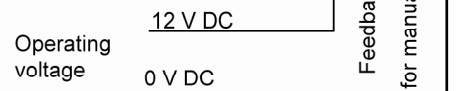
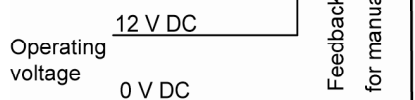
The electro installation of the device connections in the switching panel may only be carried out by qualified and trained personnel, e.g. by a trained electrician!

All VDE legal provisions and local regulations should be maintained.

Connection

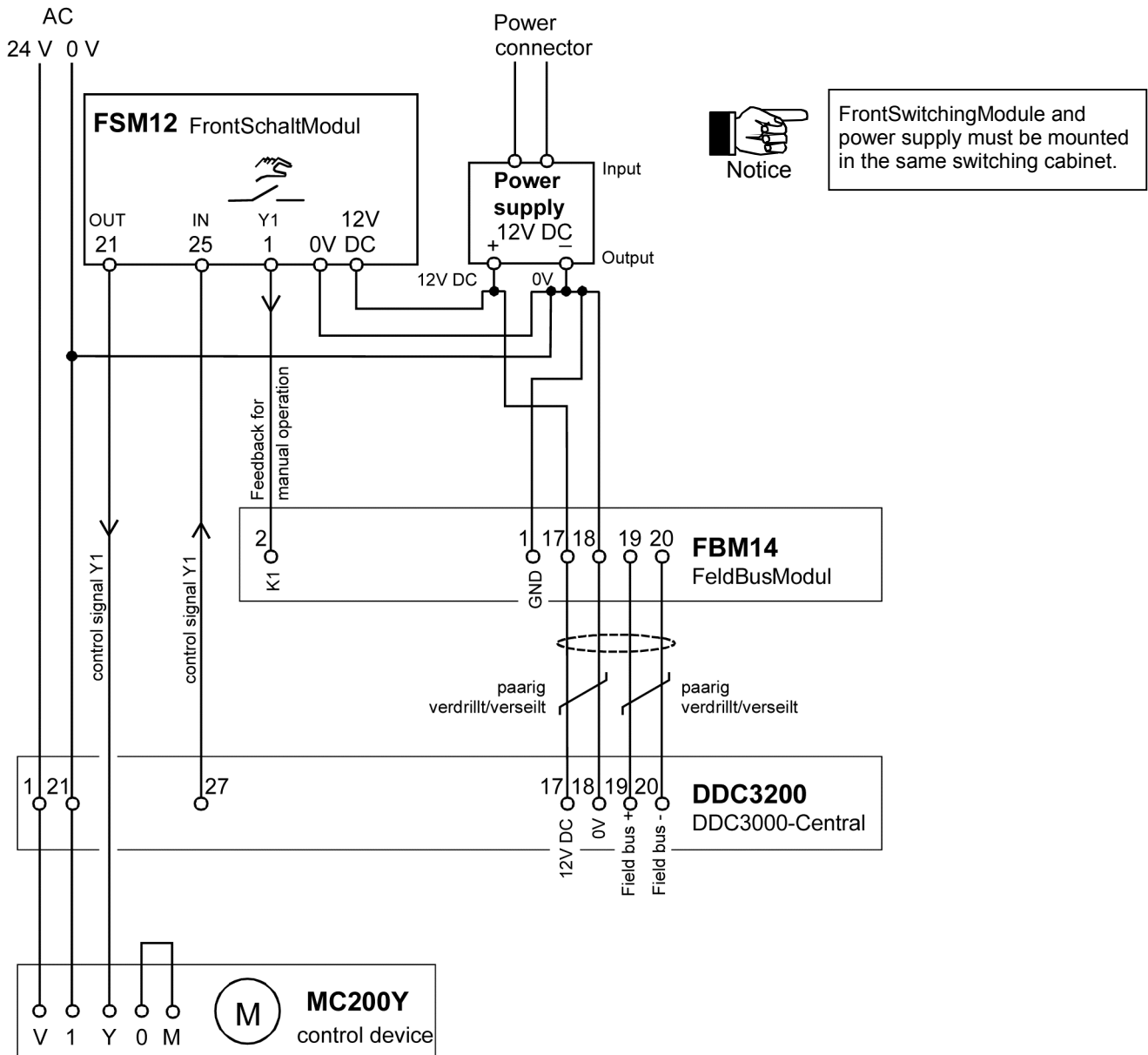


Two connection examples to servo device controls will be found on the following pages



**Connection example 1 - Manual operation/local priority operation (Emergency operation)
Common power supply 12 V DC**
for the Front Switching Modules FSM and the rest of the DDC components

Manual drive of a servo-drive MC200Y with FSM12 and feedback of the manual operation with a Field Bus Module FBM14.



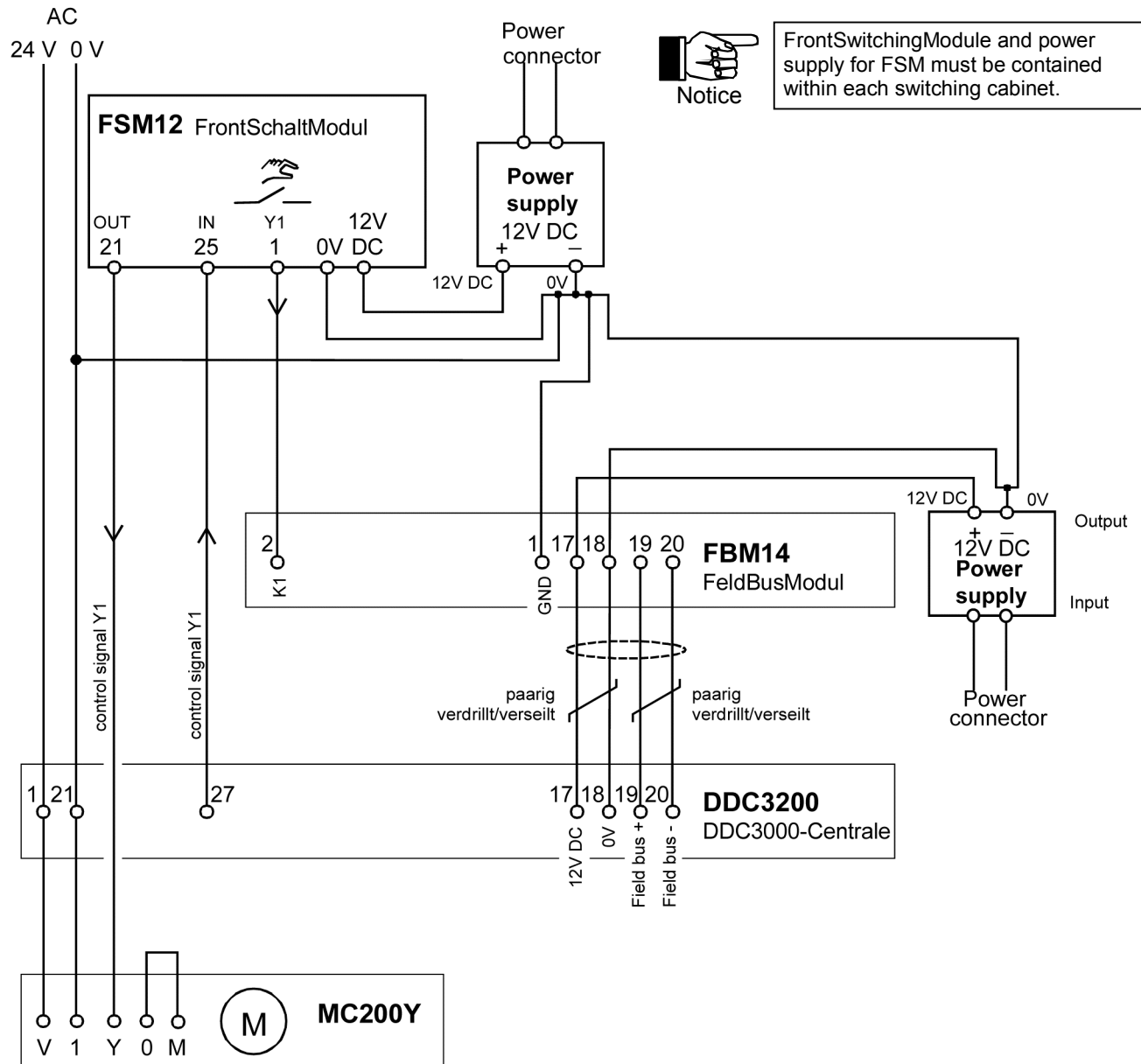
- The 0 Volt potential of the voltage supply 24 V AC and the 0 V DC of the power supply devices are connected to each other.
- The servo signal Y 0..10 V DC of the DDC3000 Central Control Unit is an the input Y1 of the Front Switching Modules are connected.
- The output Y1 of the Front Switching Modules is connected to the input of the servo-drives.
- The feedback contact of the FSM manual operation for Y1 switches against ground 0 V DC and is connected with the digital input of the Field Bus Modules.
- For manual operation of the Front Switching Modules, the feedback signal is carried on the field bus of the DDC Central Control Unit and is available in the total DDC3000 system as well as in a connected building management system BMS for linkage and further processing.

Device description

FSM12, FSM14 Front Switching Modules

Connection example 2 - Manual operation/local priority operation (Emergency operation)
Separate power supply 12 V DC
 for the Front Switching Modules FSM and the rest of the DDC components

Manual drive of a servo-drive MC200Y with FSM12 and feedback of the manual operation via Field Bus Modules FBM14.



- The 0 volt potential of the voltage supply 24 V AC and the 0 V DC of the power supply devices are connected to each other.
- The servo signal Y 0..10 V DC of the DDC3000 Central Control Unit is connected to the input Y1 of the Front Switching Modules. The output Y1 of the Front Switching Modules is connected to the input of the servo-drives.
- The feedback contact of the FSM emergency manual operation for Y1 switches against ground 0 V DC and is connected with the digital input of the Field Bus Modules.
- For manual operation of the Front Switching Modules, the feedback signal is transferred on the field bus to the DDC Central Control Unit and is available for the linkage and further processing in the total DDC3000 system as well as in a connected Building Management System BMS.

Commissioning



Commissioning and switching on the power may only be carried through after the DDC parameterization by the commissioning technician/engineer.

- The DDC Parameterization is described in the project engineering documentation DDC3000.
- Before switching on the mains, the electric connections check that the VDE legal provisions and the local regulations, the professional mounting as well as the permissible environmental conditions as set down in the technical data are in order.
- After switching on the mains, check the function of the Front Switching Modules for manual and automatic operation including feedback as well as the total function of all plant component control loops.