

The PROFIBUS serial fieldbus system helps to minimise the amount of cabling. Input and output modules, such as a PLC, become unnecessary. Instead of this, a bus cable is connected from one device to the next, and the entire communication between the individual control devices takes place over this bus line. All the PROFIBUS devices are addressed directly by the PROFIBUS controller card in the PLC or in the master computer.

In KFM controllers, the PROFIBUS interface replaces the cabling of external analogue signals (external set value inputs, actual values, set value outputs etc.).

TYPE 99spd: PROFIBUS-DP slave connection

The Profibus DP connection is implemented in accordance with EN 50170. The controller is connected directly to the bus line via a 9-pin D-SUB socket.

Technical data:

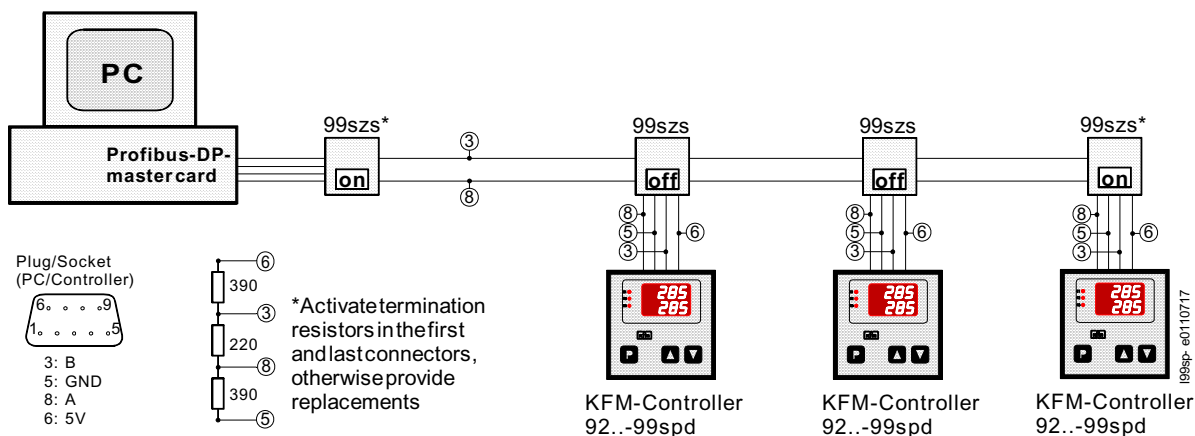
Protocol:	PROFIBUS-DP
Topology:	Linear bus with bus connections at each end
Interface:	RS 485
Addressing:	0...126 (can be set in the controller using a menu)
Max. number of devices:	32 per segment, can be increased to 127 with a repeater
Data format:	Modules for fixed or floating point data transmission
Baud rate:	Automatic baud rate detection up to max. 12 Mbaud

For other data, see the GSD file in the appendix

Pin-out of the 9-pin connector:

Pin no	Identification	Description
3	RxD / TxD-P	Receive/send data plus
4	CNTR-P	RTS control signal for optical fibres
5	DGND	Data reference potential for termination resistors
6	VP	5 V supply for termination resistors
8	RxD / TxD-N	Receive/send data minus

Wiring example:



Data modules:

The data to be transmitted are compiled in modules, data transmission is cyclical.

One module each is provided fixed decimal and floating decimal data transmission. The modules are selected via a configuration tool in the master assembly (e.g. COM profibus).

If no set values or actual values are available in the controller, the master must transmit the value 0 or the value 0 is sent from the controller

Fixed decimal data modules**Format A:**

No.	Identification	Read / write	Value (hex)
1	Status byte	R	10
2	Actual value	R	50
3	Control byte	W	20
4	External set value	W	60

Format C:

No.	Identification	Read / write	Value (hex)
1	Status byte	R	10
2	Actual value 1	R	50
3	Actual value 2	R	50
4	Control byte	W	20
5	External set value 1	W	60
6	External set value 2	W	60

Format E:

No.	Identification	Read / write	Value (hex)
1	Status byte	R	10
2	Value 1, e.g. actual value 1	R	50
3	Value 2, " " 2	R	50
4	Value 3, " " 3	R	50
5	Control byte	W	20
6	Value 1, e.g. ext. set value 1	W	60
7	Value 2, e.g. ext. set value 2 or setting actual value 1*	W	60
8	Value 3, e.g. ext. set value 3 or 2FHi*	W	60

The values are displayed in the 16-bit fixed decimal - format with one decimal place (Fixpoint 1).

Range of values: -999.9 to +3200.0

Floating decimal data modules:**Format B:**

No.	Identification	Read / write	Value (hex)
1	Status byte	R	10
2	Actual value	R	D1
3	Control byte	W	20
4	External set value	W	E1

Format D:

No.	Identification	Read / write	Value (hex)
1	Status byte	R	10
2	Actual value 1	R	D1
3	Actual value 2	R	D1
4	Control byte	W	20
5	External set value 1	W	E1
6	External set value 2	W	E1

Format F:

No.	Identification	Read / write	Value (hex)
1	Status byte	R	10
2	Value 1, e.g. actual value 1	R	D1
3	Value 2, e.g. actual value 2	R	D1
4	Value 3, e.g. actual value 3	R	D1
5	Control byte	W	20
6	Value 1, e.g. ext. set value 1	W	E1
7	Value 2, e.g. ext. set value 2 or setting actual value 1*	W	E1
8	Value 3, e.g. ext. set value 3 or EFHi (2Fhi)*	W	E1

The values are displayed in the 32-bit floating decimal - format according to standard 754 IEEE.

*= examples, other values on request; e.g.:

EFHi= external setting for parameter 2Fhi, displayed in the menu under EFHi

bLo/bHi = actual value setting: range boundaries can be adjusted via menu

- this setting is always valid and cannot be influenced by the associated status byte.-

Status byte: (from the controller)

Bit 8	Bit 7	Bit 6	Bit 5	Value 4	Value 3	Value 2	Value 1
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Values 1 - 4: Message status measurement inputs

0 = measurement is error-free

1 = error on this measurement input

Example:1001 = Error measurement input with values 4 and 1

Bit 5 – 8: Status binary inputs, boundary values etc.; 0 = off, 1 = on

Control byte: (to the controller)

Bit 8	Bit 7	Bit 6	Bit 5	Value 4	Value 3	Value 2	Value 1
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Values 1 - 4: Control unit external values

0 = value is not active, the internal value is effective (e.g. set value SP)

1 = value is active (e.g. ext. set value SPE)

Example:1010 = Values 4 and 2 are active, 3 and 1 are not active

Bit 5 – 8: Control unit binary outputs, additional relay etc.; 0 = off, 1 = on

Example: Bit 5 =: ...0.... = add. relay off; ...1.... = add. relay on

Setting the controller address:

The controller address "Adr" is the last parameter on the configuration level of the controller.

The factory pre-setting is "126". If several users are connected to the bus, it should be ensured that all devices have separate addresses.

Note: A change of the controller address does not become effective until the controller supply voltage has been briefly turned off!



; GSD-file for product 9... - 99spd
; KFM-Regelungstechnik GmbH
; Version : 09.07.1998
; File : KFM_00EB.GSD

#Profibus_DP

GSD_Revision = 1
Vendor_Name = "KFM-Regelungstechnik"
Model_Name = "9...-99spd"
Revision = "Rev. 1.01"
Ident_Number = 0x00EB
Protocol_Ident = 0 ; DP-Gerät
Station_Type = 0 ; Slave
FMS_supp = 0
Hardware_Release = "HV V1.0"
Software_Release = "SV V1.01"

9.6_supp = 1
19.2_supp = 1
45.45_supp = 1
93.75_supp = 1
187.5_supp = 1
500_supp = 1
1.5M_supp = 1
3M_supp = 1
6M_supp = 1
12M_supp = 1
MaxTsdR_9.6 = 60
MaxTsdR_19.2 = 60
MaxTsdR_45.45 = 60
MaxTsdR_93.75 = 60
MaxTsdR_187.5 = 60
MaxTsdR_500 = 100
MaxTsdR_1.5M = 150
MaxTsdR_3M = 250
MaxTsdR_6M = 450
MaxTsdR_12M = 800
Implementation = "SPC3"
Bitmap_Device = "KFM_9"
Redundancy = 0
Repeater_Ctrl_Sig = 2

; Slave-Specification:

OrderNumber = "9...-99spd"
24V_Pins = 0
Freeze_Mode_supp = 1
Sync_Mode_supp = 1
Auto_Baud_supp = 1
Set_Slave_Add_supp = 0
Min_Slave_Intervall = 0x0032
Modular_Station = 1
Max_Module = 0x01
Max_Input_Len = 32
Max_Output_Len = 32
Max_Data_Len = 64

; Module-Definitions:

Module = "Format A: Fixpoint1" 0x10,0x50,0x20,0x60
EndModule
Module = "Format B: Floating point" 0x10,0xD1,0x20,0xE1
EndModule
Module = "Format C: 2 x Fixpoint1" 0x10,0x50,0x50,0x20,0x60,0x60
EndModule
Module = "Format D: 2 x Floating point" 0x10,0xD1,0xD1,0x20,0xE1,0xE1
EndModule
Module = "Format E: 3 x Fixpoint1" 0x10,0x50,0x50,0x50,0x20,0x60,0x60,0x60
EndModule
Module = "Format F: 3 x Floating point" 0x10,0xD1,0xD1,0xD1,0x20,0xE1,0xE1,0xE1
EndModule