Type 202580 and 202581

Modular multichannel measuring device for liquid analysis with integrated controller and paperless recorder

Content

Content

1.1   Typographical conventions

	Caution
	This character is used if **personal injury** may result from failure to follow instructions correctly or not at all!

	Caution
	This symbol is used when **damage to devices or data** may occur if the instructions are disregarded or not followed correctly.

	ESD
	This character is used if precautionary measures must be taken when handling **electrostatically sensitive components**.

	Note
	This symbol is used to indicate **particularly important information**.

1 Introduction

1.2   General information

	Caution
⚠️	This interface description is addressed to the system manufacturer with related technical expertise and knowledge of PCs.
	Read this interface description prior to starting operation with PROFIBUS-DP. Keep the interface description in a place accessible to all users at all times.
	All required settings are described in this interface description. Should problems be encountered during commissioning/startup, please refrain from carrying out any actions that are not described in the operating manual. Such actions could void your warranty. Please contact your local JUMO branch office or company headquarters.

Electrostatic charge

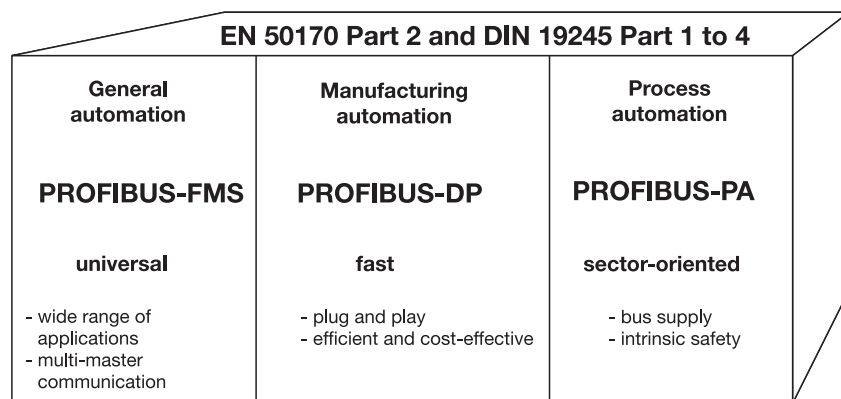|	ESD
⚠️	When accessing the interior of the device and when returning plug-in modules, assemblies or components, please follow the procedures acc. to DIN EN 61340-5-1 and DIN EN 61340-5-2 "Protection of electronic devices from electrostatic phenomena". Use only **ESD** packaging for shipment.
	Please note that we cannot accept any liability for damage caused by ESD (electrostatic charge).
	ESD=**E**lectro **S**tatic **D**ischarge

2.1   General information

PROFIBUS-DP is a manufacturer-independent, open fieldbus standard for a wide range of applications in manufacturing, process and building automation. Manufacturer independence and openness are ensured by the international standards IEC 61158 and IEC 61784.

PROFIBUS-DP allows devices from different manufacturers can communicate without any special interface adaptation. PROFIBUS-DP can be employed for both high-speed time-critical data transmission and extensive, complex communications tasks.

2.2   PROFIBUS types

EN 50170 Part 2 and DIN 19245 Part 1 to 4		
General automation	Manufacturing automation	Process automation
PROFIBUS-FMS	**PROFIBUS-DP**	**PROFIBUS-PA**
universal	fast	sector-oriented
- wide range of applications - multi-master communication	- plug and play - efficient and cost-effective	- bus supply - intrinsic safety

PROFIBUS-DP

This PROFIBUS variant, which is optimized for speed and low connection costs, has been specially tailored for communication between automation control systems (PLCs) and distributed field devices (typical access time < 10 ms).

PROFIBUS-DP can be used to replace conventional, parallel signal transmission using 24 V or 0(4) to 20 mA signals.

DPV0:Cyclic data transfer:
--> is supported

DPV1:Cyclic and acyclic data transfer:
--> is **no supported**

DPV2:In addition to cyclic and acyclic data transfer,
slave-to-slave communication occurs:
--> is **not supported**

PROFIBUS-PA

PROFIBUS-PA has been specially designed for process engineering and permits the linking of sensors and actuators to a common bus line, even in potentially explosive zones. PROFIBUS-PA allows data communication between and supply of power to devices based on two-wire technology in acc. with MBP (Manchester Bus Powering) as specified in IEC 61158-2.

PROFIBUS-FMS

2 PROFIBUS-DP description

This is the universal solution for communication tasks at the cell level (typical access time approx. 100 ms). The powerful FMS services open up a wide range of applications and provide a high degree of flexibility. FMS is also suitable for extensive communication tasks.

2.3   RS485 transmission technology

⚠	**Caution** When installing PROFIBUS systems, the installation guidelines of PNO (**P**ROFIBUS **N**UTZER**O**RGANISATION e. V.) must be observed.

Transmission takes place according to the RS485 standard. It covers all areas in which a high transmission rate and simple, cost-effective installation technology is required. A shielded, twisted copper cable with one conductor pair is used.

The bus structure permits addition and removal of stations or step-by-step commissioning of the system without affecting other stations. Subsequent expansions have no influence on the stations already in operation.

The transmission speed is selectable within a range of 9.6 Kbit/s to 12 Mbit/s. During system commissioning, one common transmission speed is selected for all devices on the bus.

Basic characteristics

Network-topology	Wiring of bus users is based on bus topology. Several bus segments can be connected by repeaters. Stub lines should be avoided.
Medium	Shielded, twisted cable to EN 50 170 Part 8-2
Number of stations	32 stations in each segment without repeater (line amplifier); with repeaters, extension to 126 stations possible
Connector	Preferably, 9-pin D-Sub connector

Structure

All devices must be connected in a line structure (one after another). Up to 32 stations (masters or slaves) can be linked within such a segment.
Repeaters are required for more than 32 stations, for instance, to increase the number of devices further.
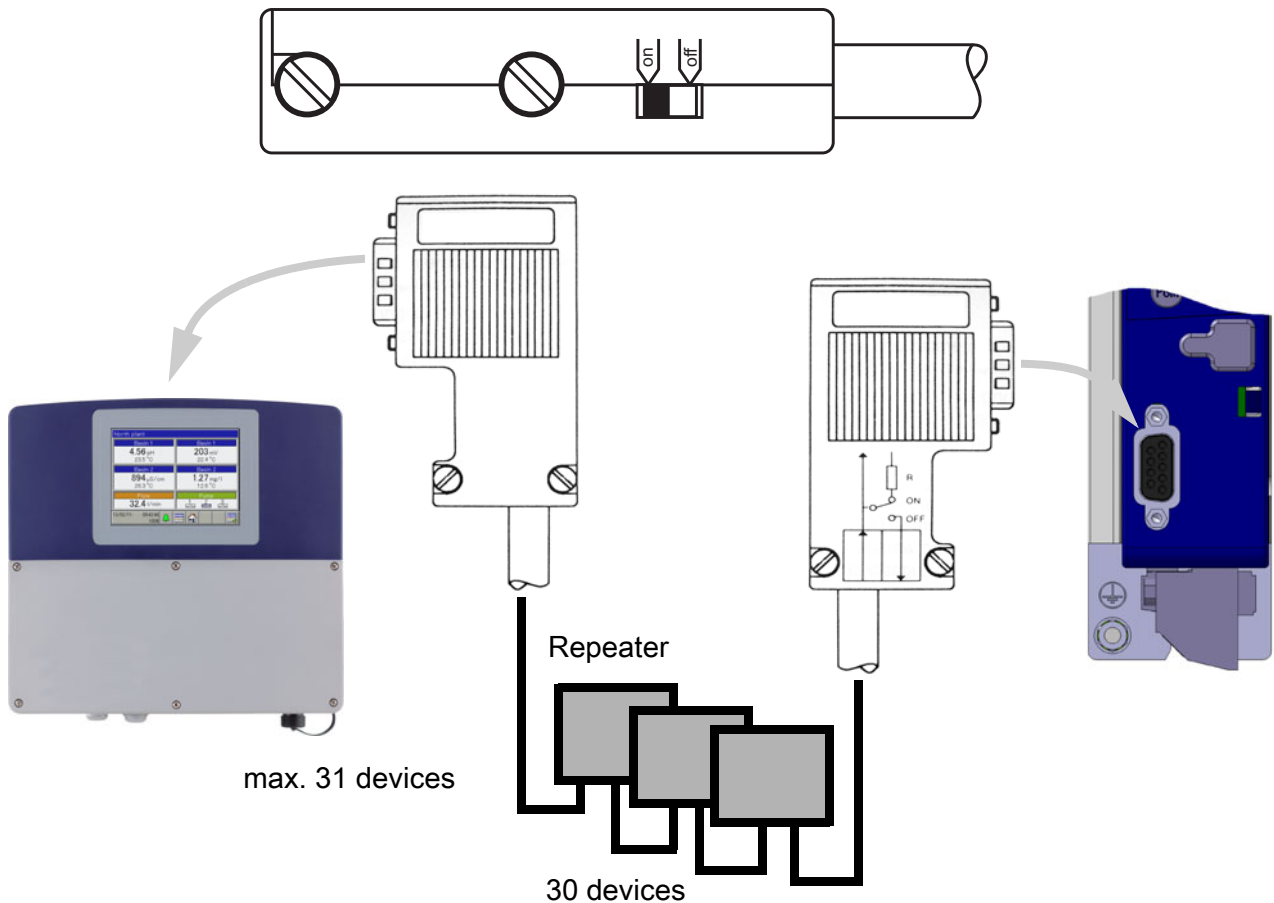
Cable length

The maximum cable length depends on the transmission speed. The cable length specified can be extended by the use of repeaters. It is recommended to limit the number of repeaters connected in series to a total of 3.

Baud rate (Kbit/s)	9.6	19.2	93.75	187.5	500	1500	12000
Range/ segment	1200 m	1200 m	1200 m	1000 m	400 m	200 m	100 m

Bus termination

At both ends of each segment the bus is terminated by terminating resistors. To ensure trouble-free operation, make sure that voltage is applied to both bus terminations at all times.
The terminating resistors are located in the PROFIBUS connectors and can be activated by moving the slide switch to "On".

Repeater

max. 31 devices

30 devices

2 PROFIBUS-DP description

Cable data

The cable length specifications refer to the cable type A described in the following:

Characteristic impedance:135 to 165 Ω
Capacitance per unit length:< 30 pf/m
Loop resistance:110 Ω/km
Core diameter:0.64 mm

Core cross-section:> 0.34 mm^2

It is preferable to use a 9-pin D-Sub connector for PROFIBUS networks incorporating RS485 transmission technology. The PIN assignment at the connector and the wiring are shown at the end of this chapter.

PROFIBUS-DP cables and connectors are offered by several manufacturers. Please refer to the PROFIBUS product catalog (www.profibus.com) for types and addresses of suppliers.

When connecting the devices, make sure that the data lines are not reversed. A shielded data line must be used!
The braided shield and the shielding foil underneath (if present) should be connected to the protective ground at both ends; ensure good conductivity of the connection.

Route the data line separately from all high-voltage cables.

The following type from Siemens is recommended as a suitable cable:

Simatic Net PROFIBUS 6XV1
Item No.: 830-0AH10
* (UL) CMX 75 °C (Shielded) AWG 22 *

Data rate

Stub lines must be avoided for data rates $\geq$ 1.5 Mbit/s.

|	
	For important information on installation, please refer to the PROFIBUS-DP Installation Guidelines, Item No. 2.111 from PNO.
	Address: PROFIBUS-Nutzerorganisation e. V. Haid- u. Neu-Strasse 7 76131 Karlsruhe
	Internet: www.profibus.com
	Recommendation:
	Please follow the installation recommendations given by PNO, especially for the simultaneous use of frequency converters.

Wiring and bus termination

Connector   Wiring   Bus termination
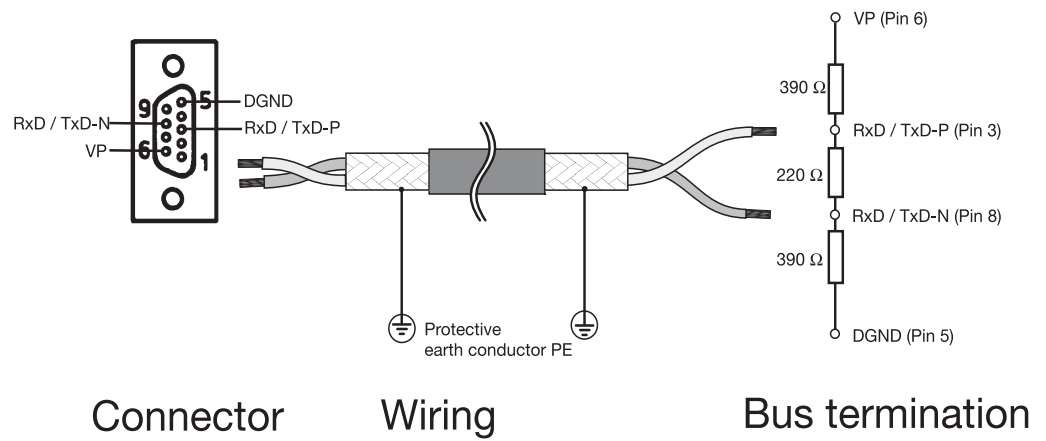
2 PROFIBUS-DP description

2.4   PROFIBUS-DP

PROFIBUS-DP is designed for high-speed data exchange at the field level. The central control devices, PLC/PC for instance, communicate through a fast serial connection with distributed field devices such as I/O, paperless recorders and controllers. Data exchange with these distributed devices is mainly cyclic. Communication functions required for this purpose are defined by the basic PROFIBUS-DP functions in accordance with IEC 61158 and IEC 61784.

Basic functions

The central control system (master) reads the input information from the slaves cyclically and writes the output information to the slaves cyclically. The bus cycle time must be shorter than the program cycle time of the central PLC. In addition to cyclic user data transmission, PROFIBUS-DP also provides powerful functions for diagnostics and commissioning.

Transmission technology:
• RS485, twisted pair cable
• Baud rates of 9.6 Kbit/s up to 12 Mbit/s
Bus access:
• Master and slave devices, max. 126 stations on one bus
Communication:
• Peer-to-peer (user data communication)
• Cyclic master-slave user data communication
Operating states:
• Operate: Cyclic transmission of input and output data
• Clear: Inputs are read, outputs remain in a secure state
• Stop: Only master-master data transfer is possible
Synchronization:
• Sync mode: is not supported
• Freeze mode: is not supported
Functions:
• Cyclic user data transfer between DP master and DP slave(s)
• Dynamic activation or deactivation of individual DP slaves
• Checking the configuration of the DP slaves
• Address assignment for the DP slaves via the bus (is not supported)
• Configuration of the DP master via the bus
• Maximum of 176 bytes of input/output data for each DP slave possible

| **Protective functions:** |
|---|
| • Response monitoring for the DP slaves

• Access protection for inputs/outputs of the DP slaves

• Monitoring of the user data communication with adjustable monitoring timer in the DP master |
| **Device types:** |
| • DP master class 2, e. g. programming/project design devices

• DP master class 1, e. g. central automation devices (PLC, PC)

• DP slave, e. g. devices with binary or analog inputs/outputs, controllers, recorders |

Cyclic data transmission

The data transmission between the DP master and the DP slaves is automatically carried out by the DP master in a defined, recurring order. During bus system configuration, the user defines the assignment of a DP slave to the DP master. The user also defines the DP slaves that are to be included in, or excluded from, the cyclic user data transmission.

Data transmission between the DP master and the DP slaves is divided into three phases: parameterization, configuration, and data transfer. Prior to a DP slave entering the data transfer phase, the DP master checks in the parameterization and configuration phases whether or not the intended configuration matches the actual device configuration. In the course of this check, the device type, format and length information as well as the number of inputs and outputs must match. These checks provide the user with reliable protection against parameterization errors. In addition to the user data transfer, which is automatically performed by the DP master, new parameterization data can be sent to the DP slaves at the request of the user.
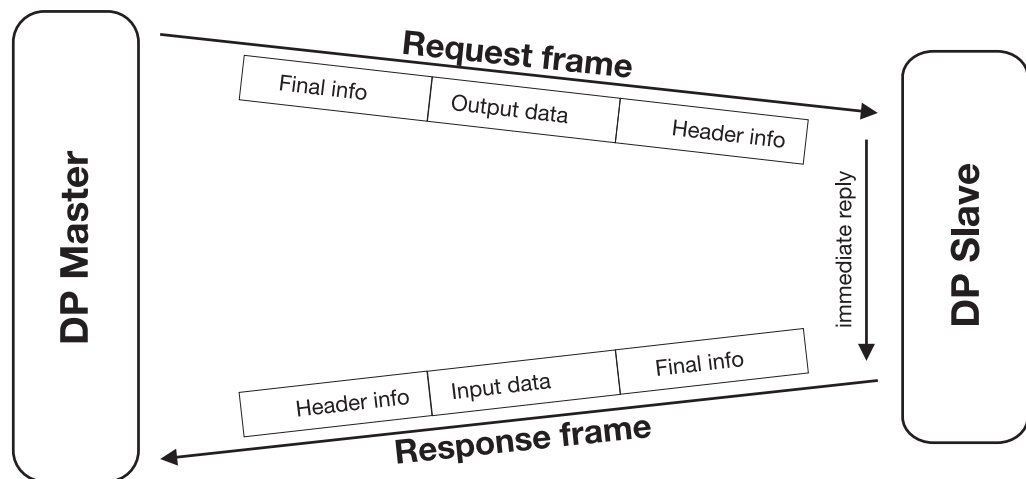
User data transmission in PROFIBUS-DP

2 PROFIBUS-DP description

3.1   The GSD file

Device data (GSD) allow open project design.

PROFIBUS-DP devices have different performance features. They differ with respect to the available functionality (e. g. number of I/O signals, diagnostic messages) or the possible bus parameters, such as baud rate and time monitoring. These parameters vary individually for each device type and manufacturer. To provide simple plug & play configuration for PROFIBUS-DP, the characteristic device features are defined in the form of an electronic data sheet device database file (ddf = GSD file). The standardized GSD files expand open communication up to the operator level. Simple and user friendly integration of devices from different manufacturers in a bus system is possible by means of the project design tool, which is based on the GSD files. The GSD files provide clear and comprehensive description of the features of a device type in a precisely defined format. GSD files are produced for the specific application. The defined file format permits the project design system simply to read in the device data of any PROFIBUS-DP device and automatically use this information for the bus system configuration. As early as the project design phase, the project design system can automatically perform checks for input errors and the consistency of data entered in relation to the overall system.

The GSD files are subdivided into three sections.

- **General specifications**
  This section contains, among other items, information on manufacturer and device names, hardware and software release versions, and the supported baud rates

- **DP master-referenced specifications**
  This section is used to enter all parameters related solely to DP master devices, e. g. the maximum number of DP slaves that can be connected, or upload and download options; this section is not available for slave devices

- **DP slave-referenced specifications**
  This section contains all slave-related information, e. g. the number and type of I/O channels, specifications for diagnostic texts and information on the consistency of I/O data

The GSD file includes not only lists, such as information on the baud rate supported by the device, but also the possibility of describing the modules available in a modular device.

3 Configuring a PROFIBUS-DP system

3.2   Configuration

Plug & Play

To simplify configuration of the PROFIBUS-DP system, the DP master (PLC) is configured with the aid of the PROFIBUS-DP configurator and the GSD files, or with the hardware configurator in the PLC.

Sequence of a configuration

Step	Action
1	Creating a GSD file by means of the GSD generator
2	Loading the GSD files of the PROFIBUS-DP slaves into the PROFI-BUS-DP network configuration software
3	Carry out configuration
4	Loading the configuration into the system (e. g. PLC)
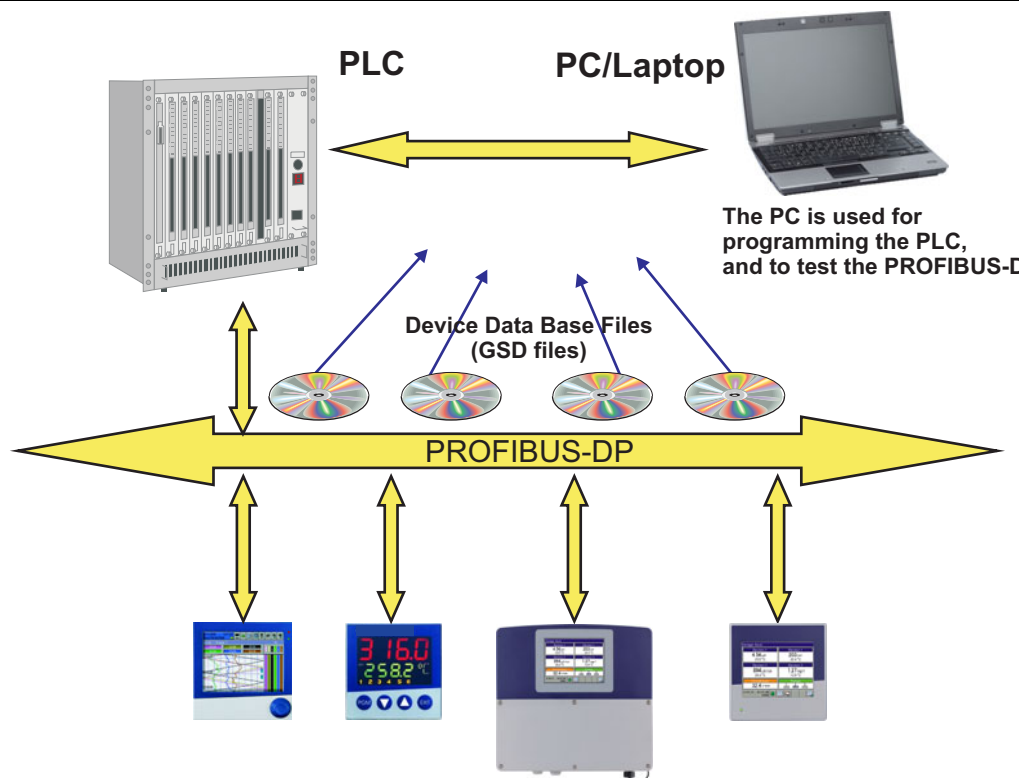
The GSD file

The individual device features of a DP slave are specified clearly and compre-hensively in a precisely defined format in the GSD file by the manufacturer.

The PROFIBUS-DP configurator / hardware configurator (PLC)

This software can read in the GSD files of PROFIBUS-DP devices of any man-ufacturer and integrate them for bus system configuration. As early as the proj-ect design phase, the PROFIBUS-DP configurator automatically checks the en-tered files for system consistency errors. The result of the configuration is read into the DP master (PLC).
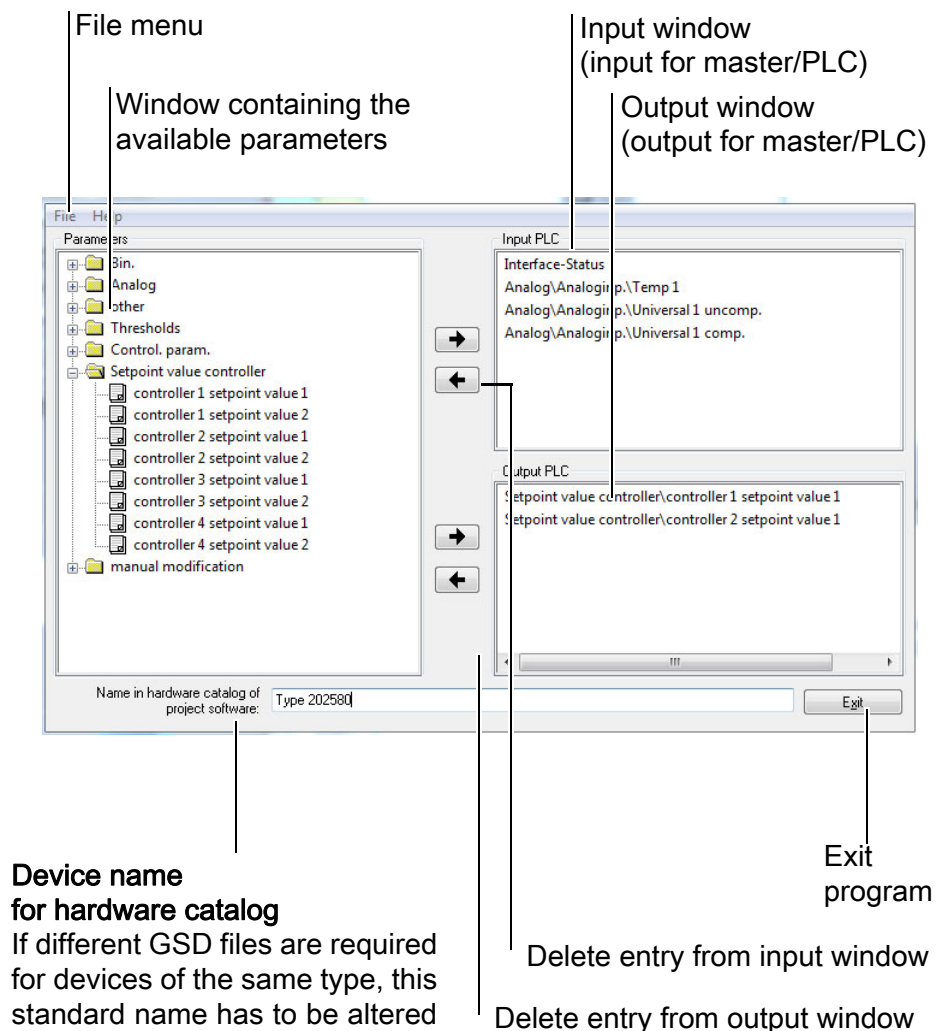
3.3 The GSD generator

3.3.1 General information

The GSD generator allows the user to generate GSD files with a PROFIBUS-DP interface.

The devices available with a PROFIBUS-DP interface are able to transmit or receive a wide variety of measurands (parameters). However, since in most applications only some of these measurands are to be transmitted via PROFIBUS-DP, the GSD generator is used to select these measurands.

Once the device is selected, all variables available appear in the „Parameterization" window. Only when these have been copied either to the "Input" or "Output" window, will they later be contained in the GSD file for further processing or pre-processing by the DP master (PLC).

3.3.2 Operation

File menu

Window containing the available parameters

Input window (input for master/PLC)

Output window (output for master/PLC)

Exit program

Delete entry from input window

Delete entry from output window

Device name for hardware catalog
If different GSD files are required for devices of the same type, this standard name has to be altered in a way that allows unambiguous assignment of the PROFIBUS master in the hardware configuration.

3 Configuring a PROFIBUS-DP system

	If SIMATIC S7 from SIEMENS is used for project design, the names in the GSD file must not be longer than 8 characters.
	GSD files with long file names cannot be entered into the PLC hardware catalog!

File menu

The file menu can be opened by using the Alt-D key combination or by means of the left mouse button. It provides the following options:
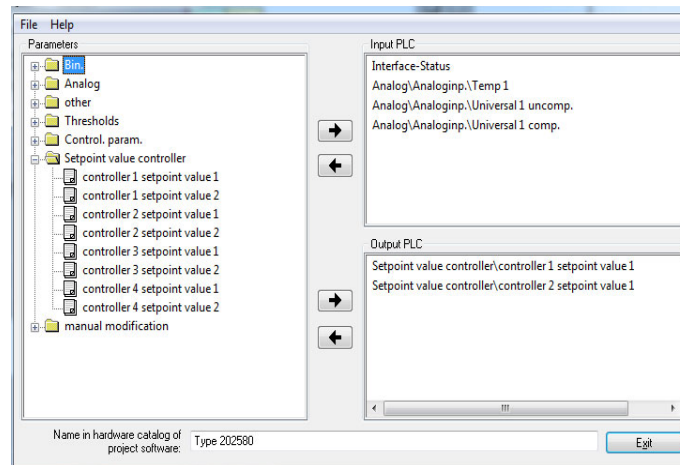
New	After the function for creating a new GSD file has been opened, the available devices are selected. After the required device has been selected, all available parameters are shown in the parameter window.
Open	This function opens an existing GSD file.
Save/ Save as	This function is used to save the generated or edited GSD file.
Diagnosis	This function can be used to test the GSD file in conjunction with a PROFIBUS-DP master simulator from B+W and the Profibus slave.
Print preview	Shows a preview of a report[1] that can be printed.
Print	Prints a report[1].
Standard settings	The language to be used at the next restart of the program can be selected here.
End	Exits the program.

[1] The report contains additional information for programming the PLC (e. g. data type of the selected parameters).

	See Chapter 3.3.3 "Sample report", page 17

3.3.3   Example report

```
I/O REPORT

Instrument:        Type 202580

Length of inputs ( Bytes ):        13
Length of outputs ( Bytes ):        8


Inputs

Byte       Description                                      Type
-------------------------------------------------------------------
[  0]      Interface-Status                                 BYTE
[  1]      Analog\Analoginp.\Temp 1                         REAL
[  5]      Analog\Analoginp.\Universal 1 uncomp.            REAL
[  9]      Analog\Analoginp.\Universal 1 comp.              REAL


Outputs

Byte       Description                                      Type
-------------------------------------------------------------------
[  0]      Setpoint value controller\controller 1 setpoint value 1
[  4]      Setpoint value controller\controller 2 setpoint value 1
```

3.3.4   Configuration of a GSD file

```
                                              202580.gsd
; ==============================
; GSD-File Gateway PROFIBUS-DP
; Type 202580
 ==============================
;
;
#Profibus_DP
GSD_Revision = 2                              ;extended GSD-file is supported
;                                             ;according to PNO directrive of 14.12.95
Vendor_Name = "Manufacturer"                  ;name of the manufacturer
Model_Name = "Tipo 202580"                    ;name of the DP-instrument
Revision = "Ausgabestand 2.0"                 ;actual edition of the DP-instrument
Ident_Number = 0x0DEE                         ;exact type designation of the
DP-instrument
Protocol_Ident = 0                            ;protocol characteristica PROFIBUS-DP
Station_Type = 0                              ;DP-Slave
FMS_supp = 0                                  ;DP-instrument only
Hardware_Release = "1.00"                     ;actual edition of the hardware
Software_Release = "2.00"                     ;actual edition of the software
;                                             ;the following baudrates are supported
9.6_supp = 1                                  ;   9.6   kBaud
19.2_supp = 1                                 ;  19.2   kBaud
;                                             ;  31.25  kBaud (PA)
45.45_supp = 1                                ;  45.45  kBaud
93.75_supp = 1                                ;  93.75  kBaud
187.5_supp = 1                                ; 187.5   kBaud
500_supp = 1                                  ; 500     kBaud
1.5M_supp = 1                                 ;   1.5   MBaud
3M_supp = 1                                   ;   3     MBaud
6M_supp = 1                                   ;   6     MBaud
12M_supp = 1                                  ;  12     MBaud
;
MaxTsdr_9.6 = 60
MaxTsdr_19.2 = 60
;                                             ;  31.25 kBaud (PA)
MaxTsdr_45.45 = 60
MaxTsdr_93.75 = 60
MaxTsdr_187.5 = 60
MaxTsdr_500 = 100
MaxTsdr_1.5M = 150
MaxTsdr_3M = 250
MaxTsdr_6M = 350
MaxTsdr_12M = 800
;
Redundancy = 0                               ;no redundant transmission
Repeater_Ctrl_Sig = 1                        ;Plug signal  CNTR-P  RS485
24V_Pins = 0                                 ;Plug signals  M24V and P24 V not
connected
Implementation_Type = "SPC3"                 ;Application of ASIC SPC3
;
;
;                                            ;*** Slave specific values ***
Freeze_Mode_supp = 0                         ;Freeze-mode is not supported
Sync_Mode_supp = 0                           ;Sync-mode is not supported
Auto_Baud_supp = 1                           ;Automatic recognition of baudrate
Set_Slave_Add_supp = 0                       ;Set_Slave_Add is not supported
Min_Slave_Intervall = 6                      ;Slave-Interval  = 0.6 ms
Modular_Station = 1                          ;Modular station
Max_Module = 6
Max_Diag_Data_Len = 6                        ;
Slave_Family = 0                             ;Allgemein
;
;
;                                            ;*** Parameterization ***
;
;This lines are for locating PBC file, and initial data length.
;Do not disturb!!!
;atPBC_File = C:\PROGRAM FILES (X86)\GSDGEN\14401XX\E\202580.PBC
;atINIT_LEN = 2
;
User_Prm_Data_Len = 24
User_Prm_Data = 0x00, 0x03, 0x03, 0x02, 0x13, 0x16, 0xBB, 0x04, 0x13, 0x16, \
0x9A, 0x04, 0x13, 0x16, 0xA0, 0x04, 0x23, 0x14, 0x71, 0x04, 0x23, \
0x14, 0x73, 0x04
Max_Input_Len = 13
```

```
                                      202580.gsd
Max_Output_Len = 8
Max_Data_Len = 21
;==================== Input Master ======================================
Module = "Interface Mode" 0x10
Preset = 1
Endmodule
Module = "Analog/Analoginp./Temp 1" 0x13
Preset = 1
Endmodule
Module = "g/Analoginp./Universal 1 uncomp." 0x13
Preset = 1
Endmodule
Module = "log/Analoginp./Universal 1 comp." 0x13
Preset = 1
Endmodule
;==================== Output Master ======================================
Module = "er/controller 1 setpoint value 1" 0x23
Preset = 1
Endmodule
Module = "er/controller 2 setpoint value 1" 0x23
Preset = 1
Endmodule
```

The configuration of the GSD file is designed for installation on the SIMATIC S7 (SIEMENS).

Should installation problems with other controls be encountered, delete all Preset = 1 entries.

In this case, it is also necessary to set up the variables selected in the GSD generator in the correct order in the PLC process image.

3 Configuring a PROFIBUS-DP system

Parameter selection

When an existing file has been opened or a new file created, all available parameters are shown in the parameter window.
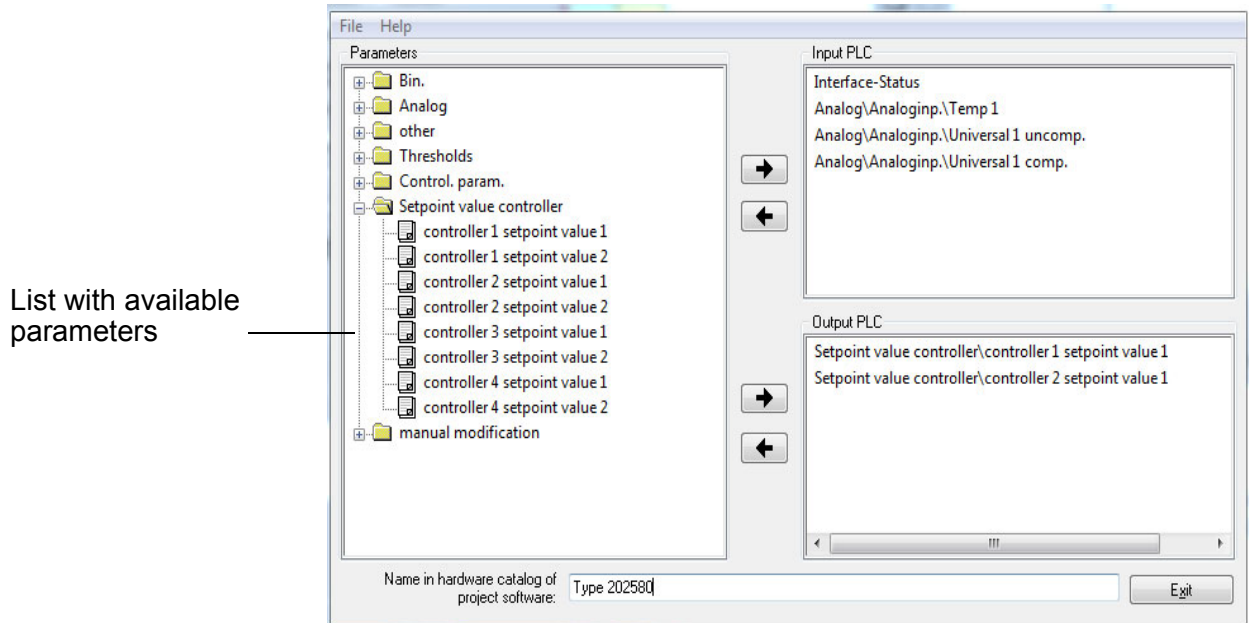
List with available parameters

Device name for hardware catalog
If different GSD files are required for devices of the same type, this standard name has to be altered in a way that allows unambiguous assignment of the PROFIBUS master in the hardware configuration.

Parameter addition or deletion

Using the arrow keys [→] and [←], parameters can be moved from the input window to the output window (and back).

> ℹ️ The "Interface status" parameter automatically appears in the input window and cannot be deleted.

Configuration data (user level)

The device's user level parameters are kept in the Configuration folder. These parameters may not be written cyclically by the PLC without end, because the corresponding memory modules of the multichannel measuring instrument have been designed for a limited number of write cycles (approx. 1 000 000).
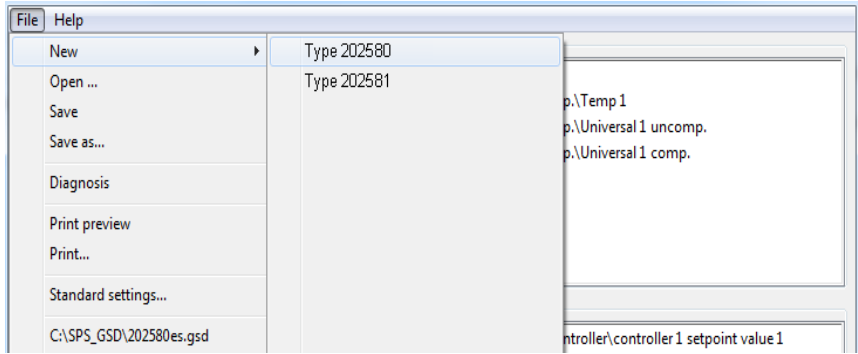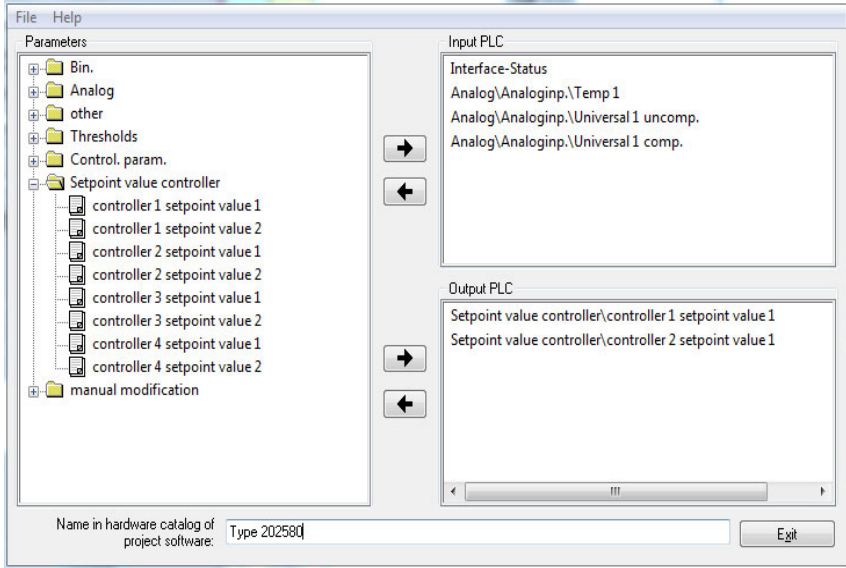
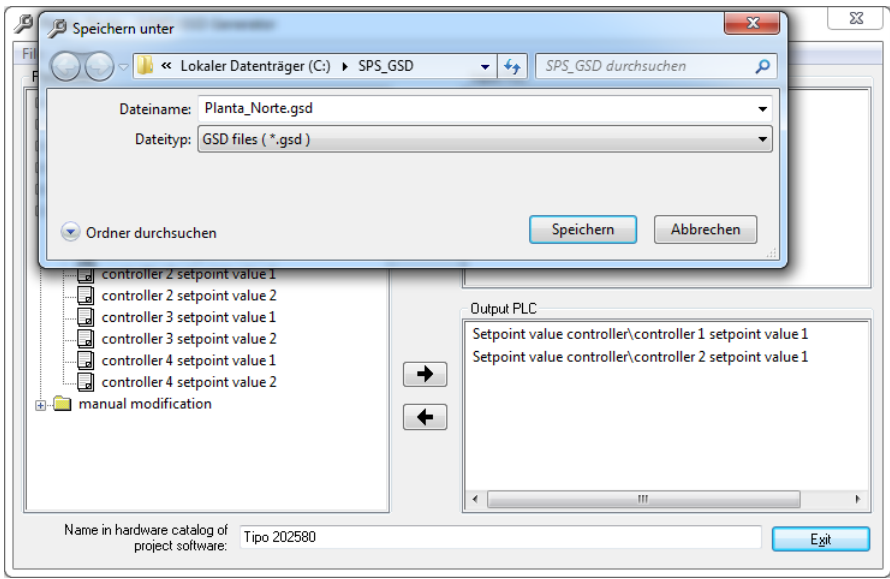## 3.4   Connection example

3.4.1   Type 202580

Step	Action
1	Connect the device to the PLC.
2	Using the device keys or the setup program, set the device address.

3.4.2   GSD generator

Step	Action
1	Start the GSD generator (example: Start / Programs / Devices / PROFIBUS / GSD generator).
2	Select the device.
3	Select the variable to be transmitted to the DP master in the left window and use the arrow key ![arrow] or drag & drop to move it into the right window.

Step	Action
4	Save the GSD file in any folder.
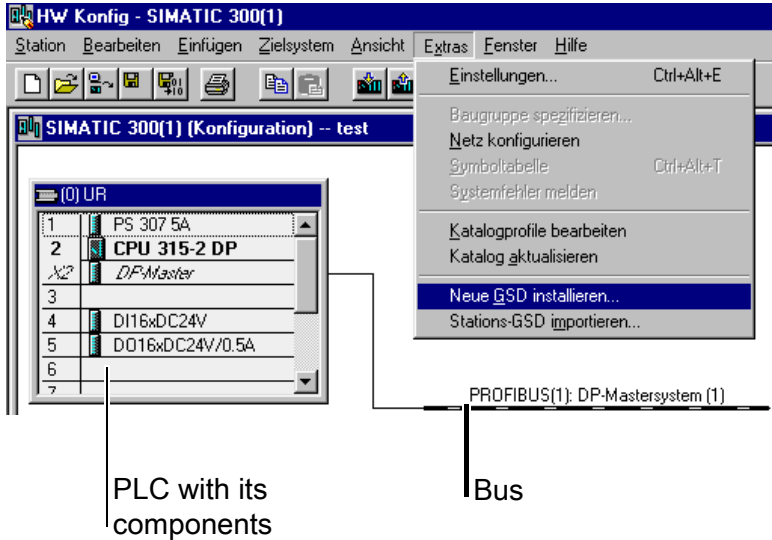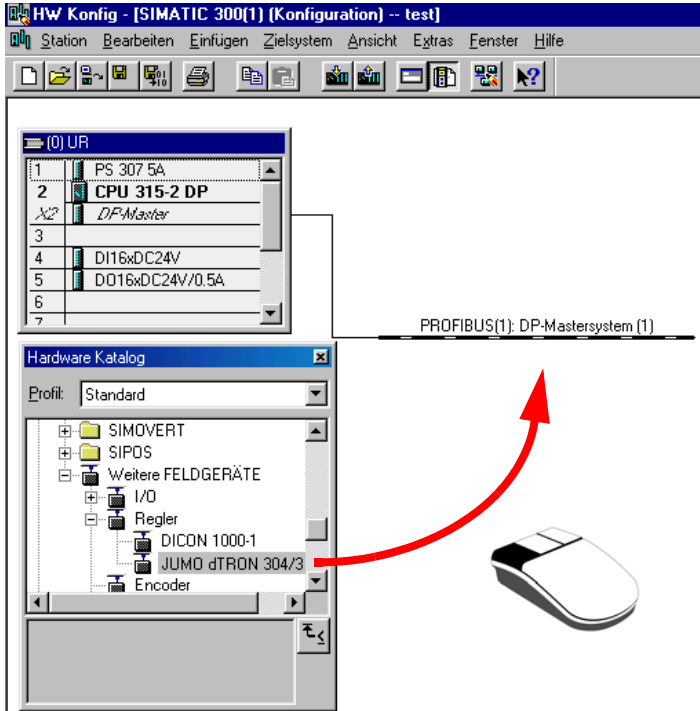
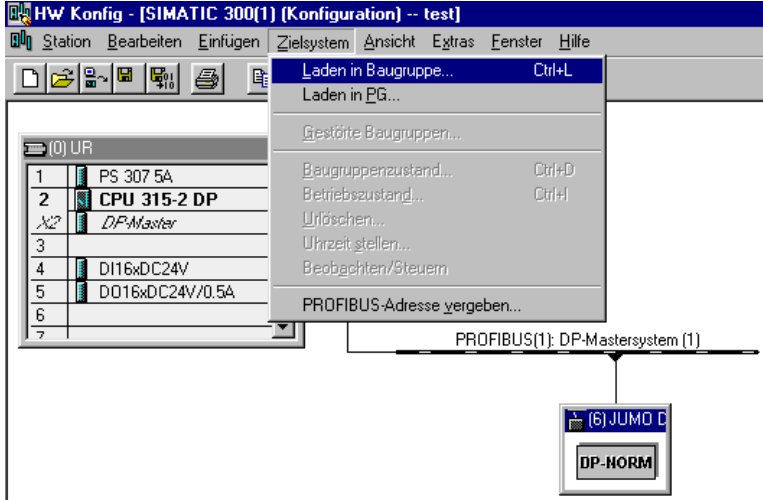|	If SIMATIC S7 from SIEMENS is used for project design, the names in the GSD file must not be longer than 8 characters.

3.4.3 PLC configuration

Step	Action
1	Start the PLC software.
2	Open the hardware configuration and execute the menu command "Install new GSD". PLC with its components Bus The new GSD file will be read in, processed, and the Type 202580 inserted into the hardware catalog.
3	Open the hardware catalog and place the new device on the work surface. Via the GSD file of the slaves, the master receives information on which baud rates are supported.

3 Configuring a PROFIBUS-DP system

Step	Action
4	Load the configuration into the PLC (*Target system* / *Load into module*).

If a device with PROFIBUS-DP interface is operated on a master system (PLC), suitable error analysis routines should be provided in the master system.

In conjunction with a SIMATIC S7, installation of the OB86 in the PLC is recommended, so that failure of a PROFIBUS-DP device can be detected and analyzed.

The "Interface status" parameter automatically appears in the input window and cannot be deleted.

|	
i ^	When devices are used on a PROFIBUS-DP system, it is necessary to use the correct data format! Two different data formats are available for selection: Little Endian Big Endian Communication with a Siemens PLC usually uses the Big Endian format.

4.1 Integer values

Integer values are transmitted in the following format:

	Big Endian	Little Endian
first the	- High byte,	- Low byte,
then the	- Low byte.	- High byte.

4.2 Floating-point values/real values

Floating-point values/real values are stored in the device in the IEEE-754 standard format (32-bit).

Single-precision floating-point format (32-bit) to Standard IEEE 754

SEEEEEEE	EMMMMMMM	MMMMMMMM	MMMMMMMM
Byte 1	Byte 2	Byte 3	Byte 4
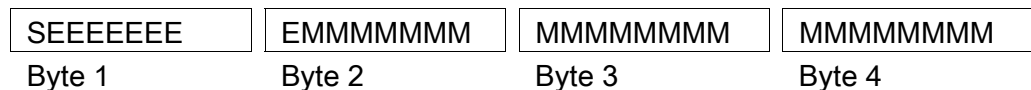
S - Sign bit (Bit 31)
E - Exponent in the twos complement (Bit 23 to Bit 30)
M - 23-bit normalized mantissa (Bit 0 to Bit 22)

Example:
Calculation of the real number from the sign, exponent, and mantissa.

Byte 1 = 40h, Byte 2 = F0, Byte 3 = 0, Byte 4 = 0

40F00000h = 0100 0000 1111 0000 0000 0000 0000 0000b

S = 0
E = 100 0000 1
M = 111 0000 0000 0000 0000 0000

$$\text{Value} = -1^S \cdot 2^{\text{Exponent}-127} \cdot (1 + M_{b22} \cdot 2^{-1} + M_{b21} \cdot 2^{-2} + M_{b20} \cdot 2^{-3} + M_{b19} \cdot 2^{-4} + \dots)$$

$$\text{Value} = -1^0 \cdot 2^{129-127} \cdot (1 + 1 \cdot 2^{-1} + 1 \cdot 2^{-2} + 1 \cdot 2^{-3} + 0 \cdot 2^{-4})$$

$$\text{Value} = 1 \cdot 2^2 \cdot (1 + 0.5 + 0.25 + 0.125 + 0)$$

$$\text{Value} = 1 \cdot 4 \cdot 1.875$$

$$\text{Value} = 7.5$$

4 Data format of the devices

	The order in which the individual bytes are transmitted depends on the data format set in the configuration. After/before transmission from/to the device, the bytes for the floating-point value must be interchanged accordingly.

Big Endian

SEEEEEEE	EMMMMMMM	MMMMMMMM	MMMMMMMM
Byte 1	Byte 2	Byte 3	Byte 4

Little Endian

MMMMMMMM	MMMMMMMM	EMMMMMMM	SEEEEEEE
Byte 4	Byte 3	Byte 2	Byte 1

5.1   Location of the interface

Expansion slot COM 2 is provided for the PROFIBUS-DP interface. If the multi-channel measuring instrument is to be equipped with a PROFIBUS-DP interface as standard, this must be stated in the order details.

If your device is not equipped with a PROFIBUS-DP interface (part no. 00581173), it can be retrofitted. ⇨ Operating manual B 202580.0

⇨ Installation instructions B 202580.4 or B 202581.4

⇨ Type sheet T 202580 or T 202581

|	
i	Note
	The type designation on the nameplate of the device indicates which optional interfaces have been installed **at the factory**. Information regarding this can be found in the "Identifying the device version" chapter in operating manual B 202580.0 / B 202581.0 or installation instructions B 202580.4 / B 202581.4 (the installation instructions are included in the scope of delivery of the device).

|	
i	Note
	Available interfaces can also be added by the user. Information regarding this can be found in the "Retrofitting optional boards" chapter in the operating manual B 202580.0 / B 202581.0 or the installation instructions B 202580.4 / B 202581.4 (the installation instructions are included in the scope of delivery of the device).

5 Device-specific information

5.1.1 Overview of connections

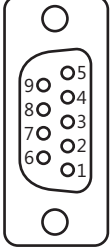The PROFIBUS-DP interface must be installed in the COM 2 expansion slot.

Type 202580

COM 2 equipped with PROFIBUS interface

Type 202581

COM 2 equipped with PROFIBUS interface
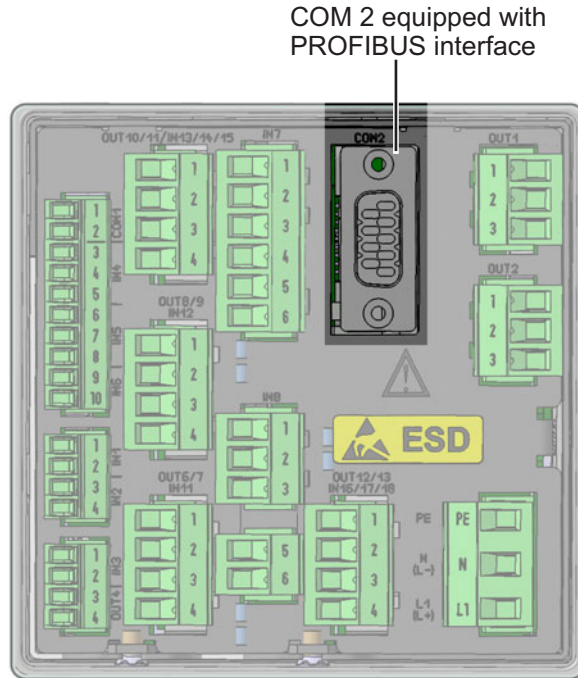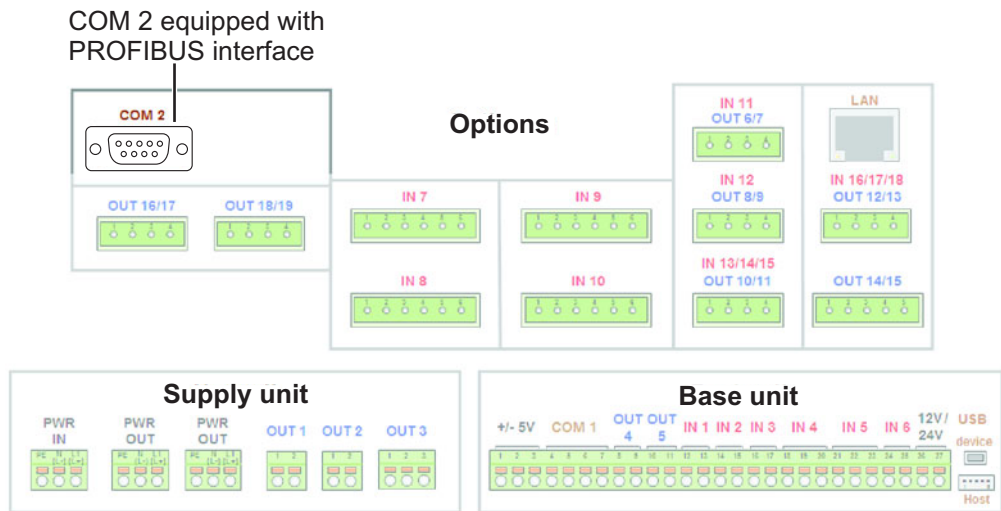
5.1.2   PIN assignment - PROFIBUS-DP interface

Pin	Signal	Wire	
3	RxD/TxD-P	Data wire B	
5	DGND	-	
6	VP	-	
8	RxD/TxD-N	Data wire A	

5 Device-specific information

5.2 Configuring the interface

The parameters of the PROFIBUS interface are set in the configuration:

Open: Device menu -> Configuration -> PROFIBUS_DP

Configuration	Value range	Default value	Description
PROFIBUS active	Yes No	No	Activation of the PROFI-BUS interface
Device address	1 to 125	1	Specification of the PRO-FIBUS user
Data format	Big Endian Little Endian	Big Endian	Big Endian Little Endian, see chapter 4 „Data format of the devices", page 25.

> ⚠ Changing the device address via the bus is not supported by the device!
>
> The baud rate is determined automatically (max. 12 MBit/s).

5.3 Diagnostic and status messages

If faults occur during communication with the device, appropriate error messages appear on the display. In addition, the binary signal "PROFIBUS error" is set to true for the duration of the error.
This binary signal is selected via:
Binary selection -> Alarms & internal signals -> PROFIBUS error

When PROFIBUS errors occur, the wiring, device address, and operation of the PROFIBUS master (PLC) must be checked.

5.3.1 Behavior when malfunctions occur

If a fault occurs during communication, all values transmitted prior to the fault are retained in the device.

5.4 Timeframe for data processing

The device processes interface data cyclically in a timeframe of 250 ms.