

Type 20255x

Transmitter/controller
for analytical measurements



B 202551.2.3

Description of the interface
PROFIBUS-DP

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Content

1.1 Typographical conventions



Danger

This symbol is used when there may be **danger to personnel** if the instructions are ignored or not followed correctly!



Caution

This symbol is used when there may be **damage to equipment or data** if the instructions are ignored or not followed correctly!



ESD

This symbol is used where special care is required when handling **components liable to damage through electrostatic discharge**.



Note

This symbol is used to draw your **special attention** to a remark.

1 Introduction

1.2 General



Caution

This description of the interface is intended for equipment manufacturers with technical expertise and PC knowledge.

Please read this description of the interface before working with PROFIBUS-DP. Keep the description of the interface in a place which is accessible to all users at all times.

All necessary settings are described in this description of the interface. If any difficulties should arise during start-up, please do not manipulate the unit in any unauthorized way not described in the operating instructions.

By doing so, you could endanger your rights under the instrument warranty! Please contact the nearest subsidiary or the head office in such a case.

Electrostatic charge



ESD

When accessing the inside of the device or when returning device plug-ins, assemblies or components, the regulations of DIN EN 61340-5-1 and DIN EN 61340-5-2 "Protection of electronic devices from electrostatic phenomena" must be observed. Use only **ESD** packages for transport.

Please note that we cannot accept any liability for damage caused by ESD (electrostatic discharge).

ESD=Electrostatic Discharge

2 Description of PROFIBUS-DP

2.1 General

PROFIBUS-DP is a manufacturer-independent, open fieldbus standard for applications in production, process and building automation.

Manufacturer-independence and openness are ensured by international standards IEC 61158 and IEC 61784.

PROFIBUS-DP allows for instruments of different manufacturers to communicate without any special adaptation of the interface. PROFIBUS-DP is suitable both for fast time-critical data transfer and for extensive and complex communication 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
<ul style="list-style-type: none">- wide range of applications- multi-master communication	<ul style="list-style-type: none">- plug and play- efficient and cost-effective	<ul style="list-style-type: none">- bus supply- intrinsic safety

PROFIBUS-DP

This PROFIBUS variant, which is optimized for high speed and low connection costs, has been especially designed for communication between automation control systems (PLC) and distributed field devices (typical access time < 10ms). PROFIBUS-DP can be used to replace conventional, parallel signal transmission with 24V or 0/4-20mA.

DPV0: cyclic data transfer:
--> supported

DPV1: cyclic and acyclic data transfer:
--> **not supported**

DPV2: In addition to cyclic and acyclic data transfer, slave-to-slave communication and other forms of data transfer take place:
--> **not supported**

PROFIBUS-PA

PROFIBUS-PA has been specifically designed for process engineering. It permits linking of sensors and actuators to a common bus cable, even in hazardous areas. PROFIBUS-PA enables data communication and energy supply for devices in two-wire technology according to MBP (Manchester Bus Powering) as specified in standard IEC 61158-2.

2 Description of PROFIBUS-DP

PROFIBUS-FMS

This is the universal solution for communication tasks at 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

Transmission takes place according to the RS485 standard. It covers all areas in which high transmission speed and simple, cost-effective installation are 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 the other stations. Later expansions have no influence on the stations which are already in operation.

Transmission speeds between 9.6 kBit/s and 12 Mbit/s are available. One uniform transmission speed is selected for all devices on the bus when the system is commissioned.

Basic characteristics

Network topology	linear bus, active bus termination at both ends, stub cables are only permissible for baud rates < 1.5 Mbit/s
Medium	shielded twisted-pair cable
Number of stations	32 stations in each segment without repeater (line amplifier), with repeaters, this can be expanded to 126
Connector	preferably 9-pin sub-D connector

Structure

All devices must be connected in a line structure (one after another). Up to 32 stations (master or slaves) can be linked up within one segment. If there are more than 32 stations, repeaters must be used to further increase the number of devices, for instance.

Cable length

The maximum cable length depends on the transmission speed. The cable length specified can be extended by using repeaters. It is recommended not to connect more than 3 repeaters in series.

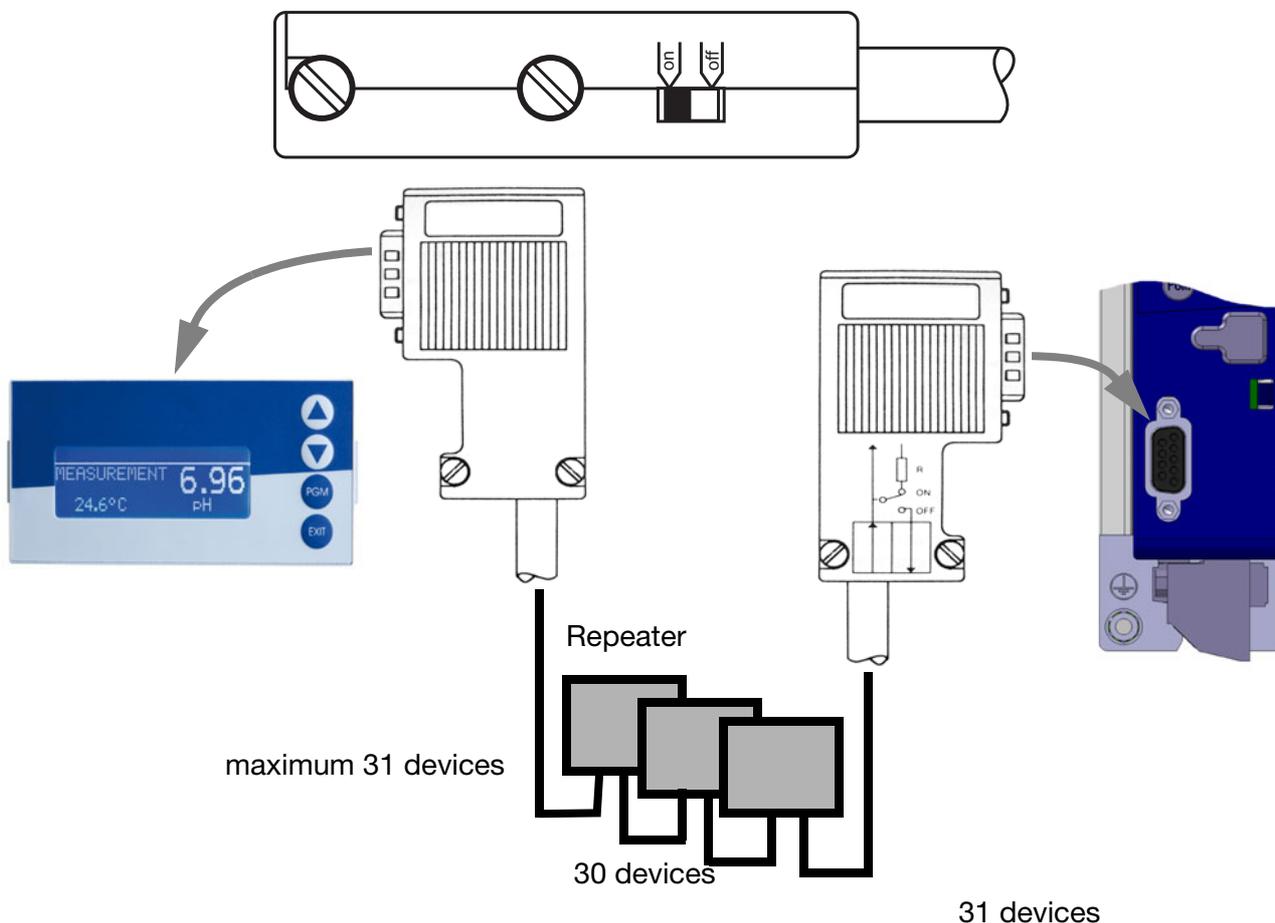
Baud rate (kbit/s)	9.6	19.2	93.75	187.5	500	1500	12000
Range/segment	1200 m	1200 m	1200 m	1000 m	400 m	200 m	100 m

2 Description of PROFIBUS-DP

Bus termination

The bus is terminated by termination resistors at the start and end of each segment.

Both bus terminators must always be powered, to ensure fault-free operation. The termination resistors are located in the PROFIBUS connectors and can be activated by setting the slide switch to ON.



Cable data

These cable length specifications refer to the cable type A described below:

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 sub-D 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 supplied by several manufacturers. Please refer to the PROFIBUS product catalog (www.profibus.com) for types and addresses of suppliers.

2 Description of PROFIBUS-DP

When connecting up the devices, make sure that the data lines are not reversed. It is absolutely essential to use shielded data lines.

The braided shield and the screen foil underneath (if present) should be connected to the protective ground on both sides, and with good conductivity.

Furthermore, the data lines should be routed separately from all high-voltage cables, as far as this is possible.

As a suitable cable, we recommend the following type from Siemens:

Simatic Net PROFIBUS 6XV1

Order No.: 830-0AH10

*** (UL) CMX 75 °C (Shielded) AWG 22 ***

Data rate

At data rates ≥ 1.5 MBit/s, the use of stub cables must be avoided.



For important information about installation, please refer to the Installation Guidelines PROFIBUS-DP, Order No. 2.111 by the PNO (PROFIBUS-Nutzerorganisation).

Address:

PROFIBUS-Nutzerorganisation e.V.

Haid- u. Neu-Strasse 7

76131 Karlsruhe

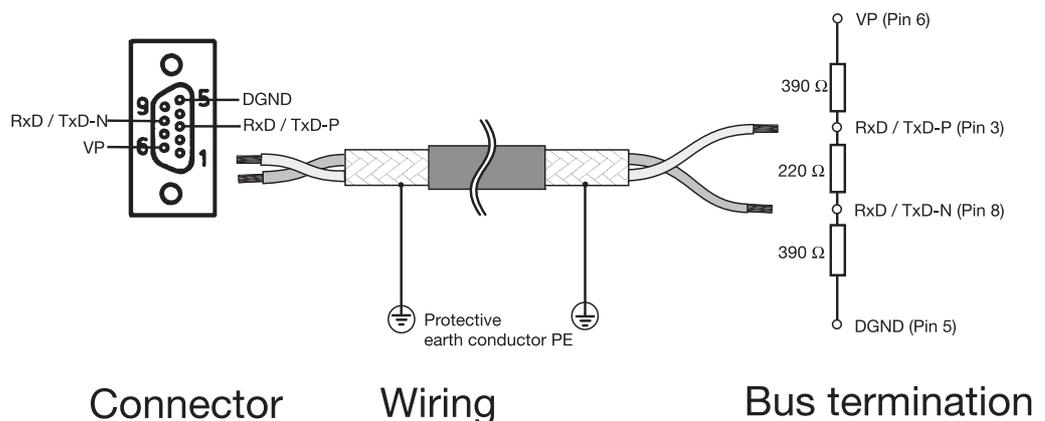
Germany

Internet: www.profibus.com

Recommendation:

Please follow the installation recommendations made by the PNO, especially for the simultaneous use of frequency inverters.

Wiring and bus termination



2 Description of PROFIBUS-DP

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. The communication functions required for this are defined by the basic PROFIBUS-DP functions in accordance with IEC 61158 and IEC 61784.

Basic functions

The central controller (master) reads the input information cyclically from the slaves and writes the output information cyclically to the slaves. 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 provides powerful functions for diagnostics and commissioning.

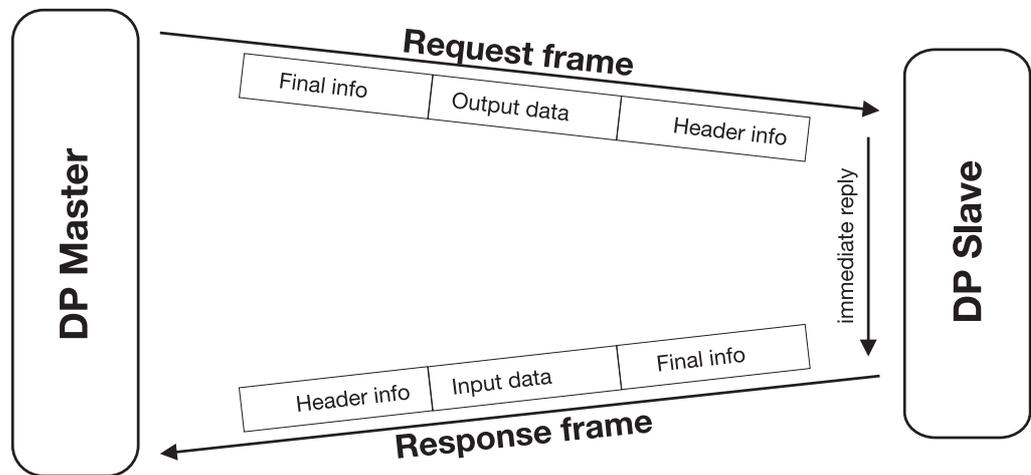
Transmission technology: <ul style="list-style-type: none">• RS485 twisted pair• Baud rates from 9.6 kbit/s to 12 Mbit/s
Bus access: <ul style="list-style-type: none">• Master and slave devices, max. 126 stations on one bus
Communication: <ul style="list-style-type: none">• Point-to-point (user data communication)• Cyclic master-slave user data communication
Operating states: <ul style="list-style-type: none">• Operate: Cyclic transmission of input and output data• Clear: Inputs are read, outputs remain in secure state• Stop: Only master-master data transfer is possible
Synchronization: <ul style="list-style-type: none">• Sync mode: not supported• Freeze mode: not supported
Functionality: <ul style="list-style-type: none">• 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 (not supported)• Configuration of the DP master via the bus• Maximum of 246 bytes input/output data for each DP slave
Protective functions: <ul style="list-style-type: none">• Address monitoring for the DP slaves• Access protection for inputs/outputs of the DP slaves• Monitoring of user data communication with adjustable monitoring timer in the DP master
Device types: <ul style="list-style-type: none">• DP master Class 2, e.g. programming/project design devices• DP master Class 1, e.g. central automation devices such as PLC, PC, etc.• DP slave e.g. devices with binary or analog inputs/outputs, controllers, recorders, etc.

2 Description of PROFIBUS-DP

Cyclic data transmission

The data transmission between the DP master and the DP slaves is carried out by the master in a defined, recurring order. When configuring the bus system, the user defines the assignment of a DP slave to the master. The definition also specifies which DP slaves will be included in, or excluded from, the cyclic user data communication.

Data transmission between the master and the DP slaves is divided into three phases: parameterization, configuration and data transfer. Before a DP slave enters the data transfer phase, the DP master checks in the parameterization and configuration phase whether the planned 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 agree. These checks provide the user with reliable protection against parameterization errors. In addition to the user data transfer, which is performed automatically 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

3 Configuration of a PROFIBUS-DP system

3.1 The GSD file

Device data (GSD) enable 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 possible bus parameters, such as baud rate and time monitoring. These parameters vary individually for each device type and manufacturer. In order to obtain simple Plug & Play configuration for PROFIBUS-DP, the characteristic device features are defined in an electronic data sheet (device database file, GSD file for German **Gerätstammdaten Datei**). The standardized GSD files expand open communication up to the operator level. The project design tool, which is based on the GSD files, facilitates simple and user-friendly integration of devices from different manufacturers into a bus system. The GSD files provide a clear and comprehensive description of a device type in a precisely defined format. GSD files are prepared according to the application. The defined file format permits the project design system to simply read in the device data of any PROFIBUS-DP device and automatically use this information when configuring the bus system. Already during 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 entire system.

The GSD files are divided into three sections.

- **General specifications**
This section contains information on manufacturer and device names, hardware and software release states and the baud rates supported.
- **DP master-related specifications**
This section contains all the parameters related to DP master devices only, such as 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-related specifications**
This section contains all slave-related specifications, such as the number and type of I/O channels, specifications of diagnostic texts and information on the consistency of I/O data.

The GSD file contains lists, such as the baud rates supported by the device, as well as the possibility of describing the modules available in a modular device.

3 Configuration of a PROFIBUS-DP system

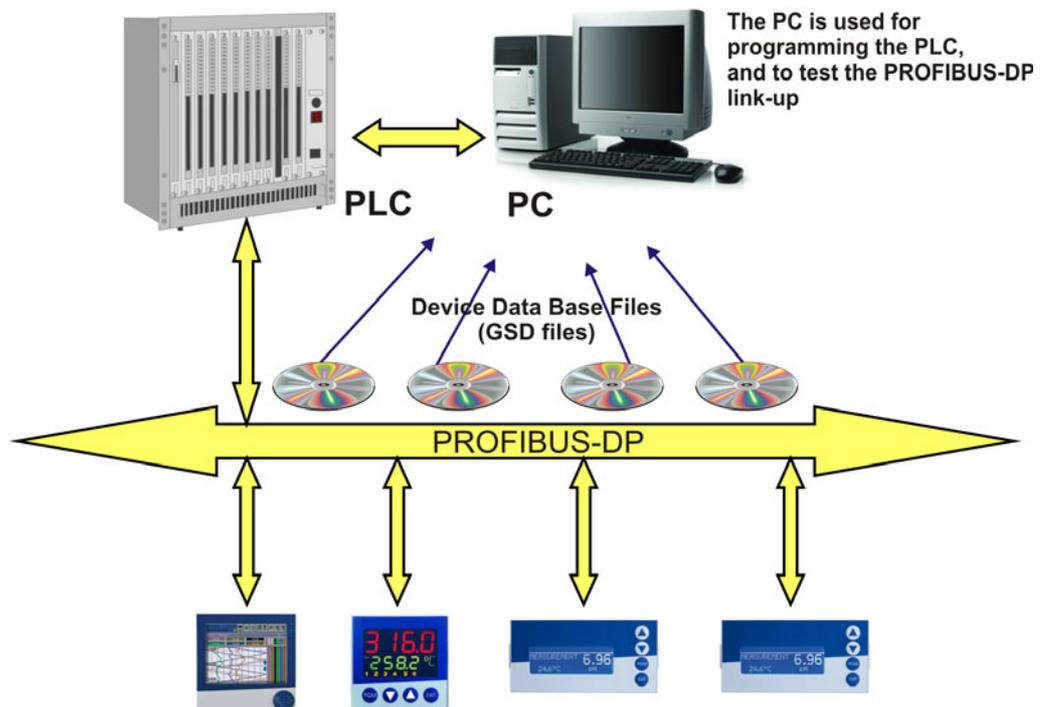
3.2 Configuration procedure

Plug & Play

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

Configuration steps

- Create GSD file by using the GSD generator
- Load GSD files of the PROFIBUS-DP slaves into the PROFIBUS-DP network configuration software
- Perform configuration
- Load configuration into the system (e.g. PLC)



The GSD file

The characteristic device features of a DP slave are specified by the manufacturer, clearly and comprehensively in a precisely defined format, in the GSD file (Device Database File).

The PROFIBUS-DP configurator/hardware configurator (PLC)

This software can read in the GSD files from PROFIBUS-DP devices of any manufacturer and integrate them for the configuration of the bus system.

Already in the project design phase, the PROFIBUS-DP configurator automatically checks the files that have been entered for errors in system consistency. The result of the configuration is read into the DP master (PLC).

3 Configuration of a PROFIBUS-DP system

3.3 The GSD generator

3.3.1 General

GSD files for devices with a PROFIBUS-DP interface are generated by the user with the aid of the GSD generator.

The devices with a PROFIBUS-DP interface can send or receive a large variety of variables (parameters). However, since only a portion of these variables will be sent via PROFIBUS-DP in most applications, the GSD generator is used to make a selection of these variables.

After the device is selected, all available variables are shown in the “Parameters” window. Only after these have been copied to the “Input” or “Output” window will they later be contained in the GSD file for processing or preprocessing by the DP master (PLC).

3.3.2 Operation

The screenshot shows the GSD generator software interface. On the left is a 'Parameters' window with a tree view of 'Parameter block 1' containing various parameters like 'lower set point value limit', 'Set point value 1', etc. In the center are two windows: 'Input PLC' and 'Output PLC'. The 'Input PLC' window contains a list of variables such as 'Interface Status', 'Actual values\Main value', etc. The 'Output PLC' window contains controller-specific entries like 'Controller\Controller 1\Parameter block 1\Set point'. Navigation arrows between the parameter list and the input/output windows allow for adding or removing entries. An 'Exit' button is at the bottom right. A text box at the bottom left contains the device name 'Type 20255x'.

File menu

Window with available parameters

Input window (input for master/PLC)

Output window (output for master/PLC)

These addresses are described in the Modbus interface description.

Name in hardware catalog of project software: Type 20255x

Device name for hardware catalog
If different GSD files are required for devices of the same type, this standard name should be altered in such a way as to enable an unambiguous assignment of the PROFIBUS master in the hardware configuration.

Delete entry from the input window

Delete entry from the output window

Close program

3 Configuration of a PROFIBUS-DP system

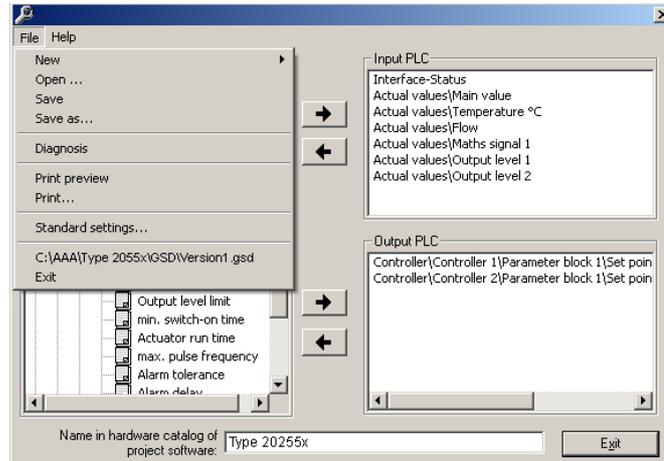


When using SIEMENS Simatic S7 for project design, the file names in the GSD file must not be longer than 8 characters.

GSD files with long file names cannot be entered into the hardware catalog of the PLC!

File menu

The file menu can be opened by using the Alt-D combination or the left mouse button. It provides the following options:



New	After the function which creates a new GSD file is launched, the available devices are selected. After the required device is selected, all available parameters are shown in the parameter window.
Open	This function opens an existing GSD file.
Save/Save as	This function is available for saving the generated or altered GSD file.
Diagnosis	Using this function, the GSD file can be tested in conjunction with a PROFIBUS-DP master simulator from B+W and the PROFIBUS slave.
Print preview	Shows the preview of a report ^a , which can be printed
Print	Prints a report ^a
Default settings	The language to be used the next time the program is restarted can be selected here.
Exit	Exits the program

^a The report contains additional information for PLC programming (the datatype of the selected parameters, etc.).



See section 3.3.3 "Sample report", page 17

3 Configuration of a PROFIBUS-DP system

3.3.3 Sample report

I/O REPORT

Instrument: 202551/52/53

Length of inputs (Bytes): 25

Length of outputs (Bytes): 8

Inputs

Byte	Description	Type
[0]	Interface-Status	BYTE
[1]	Actual values\Main value	REAL
[5]	Actual values\Temperature °C	REAL
[9]	Actual values\Flow	REAL
[13]	Actual values\Maths signal 1	REAL
[17]	Actual values\Output level 1	REAL
[21]	Actual values\Output level 2	REAL

Outputs

Byte	Description	Type
[0]	Controller\Controller 1\Parameter block 1\Set point value 1	
[4]	Controller\Controller 2\Parameter block 1\Set point value 1	

3 Configuration of a PROFIBUS-DP system

3.3.4 Arrangement of a GSD file

```
version1.gsd
;=====
; GSD-File Gateway PROFIBUS-DP
; 202551/52/53
;=====
;
;
;#Profibus_DP
GSD_Revision = 2                ;extended GSD-file is supported
;                               ;according to PNO directive of 14.12.95
Vendor_Name = "                " ;name of the manufacturer
Model_Name = "202551/52/53"     ;name of the DP-instrument
Revision = "Ausgabestand 2.0"   ;actual edition of the DP-instrument
Ident_Number = 0x0CB2          ;exact type designation of the DP-instrument
Protocol_Ident = 0              ;protocol characteristic 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
;
MaxTcdr_9.6 = 60
MaxTcdr_19.2 = 60
;                               ; 31.25 kBaud (PA)
MaxTcdr_45.45 = 60
MaxTcdr_93.75 = 60
MaxTcdr_187.5 = 60
MaxTcdr_500 = 100
MaxTcdr_1.5M = 150
MaxTcdr_3M = 250
MaxTcdr_6M = 350
MaxTcdr_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
;
```

3 Configuration of a PROFIBUS-DP system

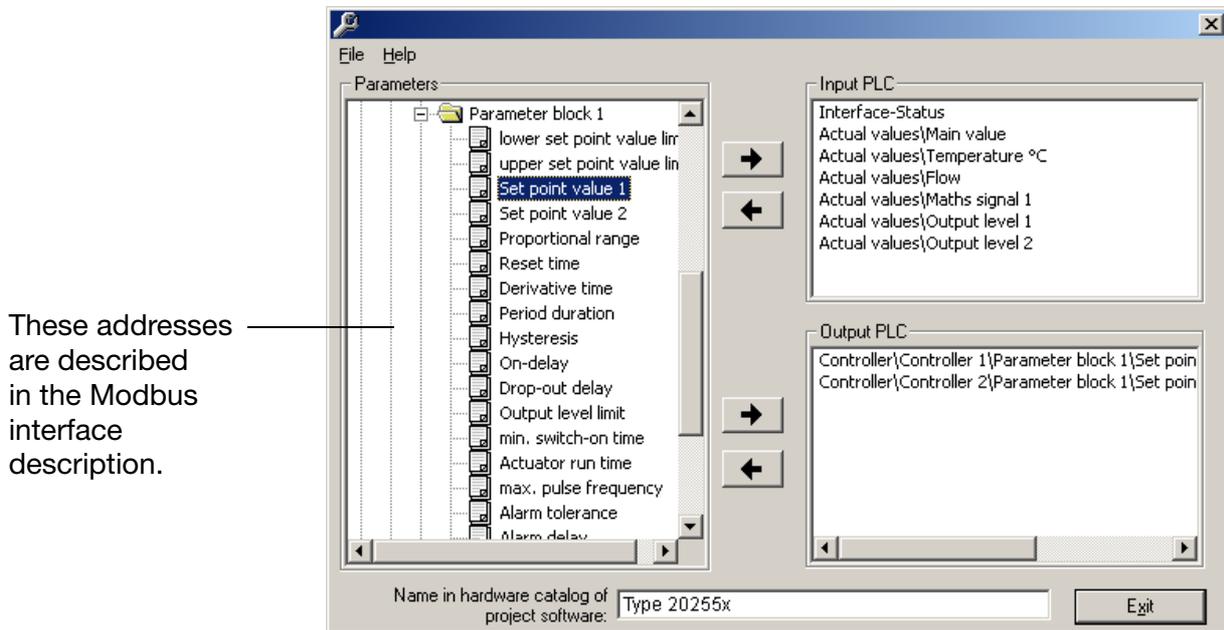
```
User_Prm_Data_Len = 36
User_Prm_Data = 0x00, 0x03, 0x06, 0x02, 0x13, 0x00, 0x50, 0x04, 0x13, 0x00, \
0x60, 0x04, 0x13, 0x00, 0x68, 0x04, 0x13, 0x00, 0x76, 0x04, 0x13, \
0x00, 0x9f, 0x04, 0x13, 0x00, 0xa1, 0x04, 0x23, 0x05, 0xc4, 0x04, \
0x23, 0x06, 0x04, 0x04
Max_Input_Len = 25
Max_Output_Len = 8
Max_Data_Len = 33
;===== Input Master =====:
Module = "Interface Mode" 0x10
Preset = 1
Endmodule
Module = "Actual values/Main value" 0x13
Preset = 1
Endmodule
Module = "Actual values/Temperature °C" 0x13
Preset = 1
Endmodule
Module = "Actual values/Flow" 0x13
Preset = 1
Endmodule
Module = "Actual values/Maths signal 1" 0x13
Preset = 1
Endmodule
Module = "Actual values/Output level 1" 0x13
Preset = 1
Endmodule
Module = "Actual values/Output level 2" 0x13
Preset = 1
Endmodule
;===== Output Master =====:
Module = "ameter block 1/Set point value 1" 0x23
```

The GSD file has been arranged for installation on the SIMATIC S7 (SIEMENS).
If installation problems occur with other controllers, all entries Preset=1 must be deleted.
In this case, the variables selected in the GSD generator must also be set up in the correct sequence in the process image of the PLC.

3 Configuration of a PROFIBUS-DP system

Select parameter

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



Device name for hardware catalog

If different GSD files are required for devices of the same type, this standard name should be altered in such a way as to enable an unambiguous assignment of the PROFIBUS master in the hardware configuration.

Add or delete parameter

Parameters can be moved from the input to the output window (and back) with the  and  arrow keys.



The parameter "Interface status" will automatically appear in the input window and cannot be deleted. It is used for diagnosis of the internal data transmission in the device and should be evaluated by the PLC program, to make sure the data are valid.

0 : internal communication in device is ok

not equal to 0 : faulty internal communication in device

Configuration data (operator level)

The parameters from the operator level of the device reside in the Configuration folder. These parameters must not be written on a permanent cyclic basis by the PLC because they are written to the EEPROM, which is only designed for a limited number of about 1,000,000 write cycles.

3 Configuration of a PROFIBUS-DP system

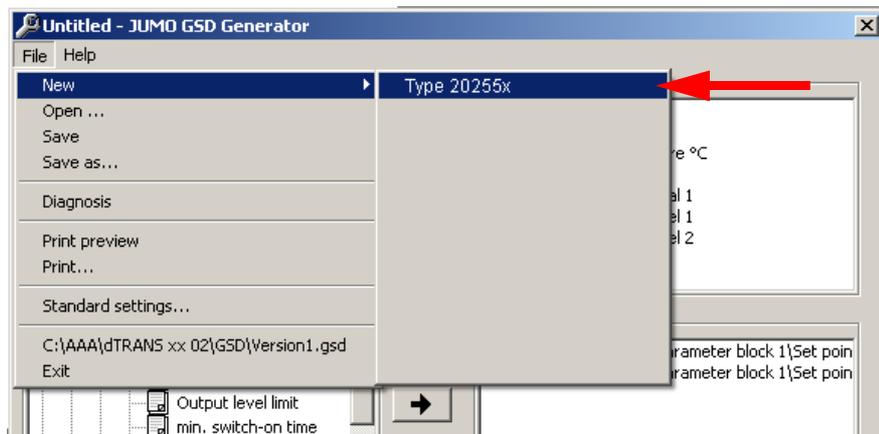
3.4 Connection example

3.4.1 Type 20255x

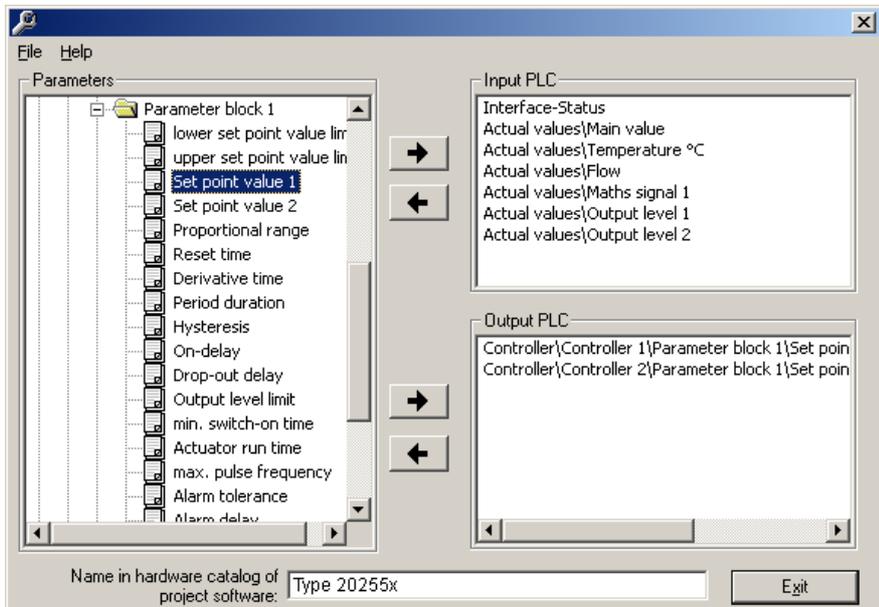
- * Connect the device to the PLC.
- * Set the device address with the device keyboard or the setup program.

3.4.2 GSD generator

- * Start up the GSD generator (example: *Start / Program Files / Devices / PROFIBUS / GSD generator*).
- * Select the device.



- * In the left window, select the variable to be transmitted to the DP master and move it into the right window with the arrow  key or using Drag & Drop.



3 Configuration of a PROFIBUS-DP system

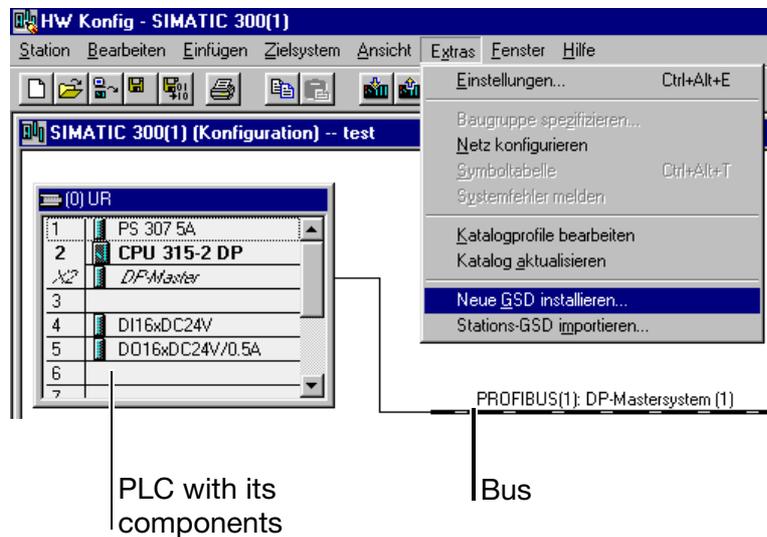
- * Save the GSD file in any folder.



When using SIEMENS Simatic S7 for project design, the file names in the GSD file must not be longer than 8 characters.

3.4.3 SPS configuration

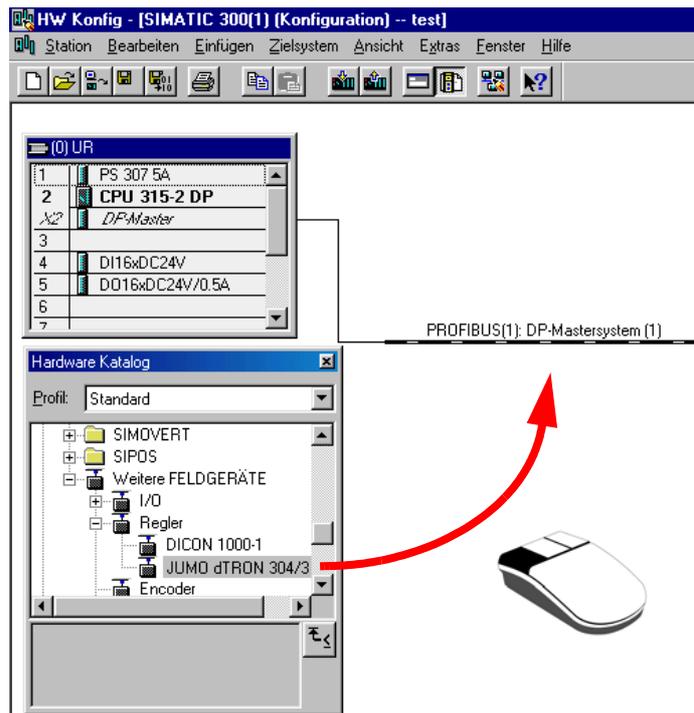
- * Start the PLC software.
- * Call up the hardware configuration and run the menu command "Install new GSD".



The new GSD file is read in and processed, and the type 20255x is inserted into the hardware catalog.

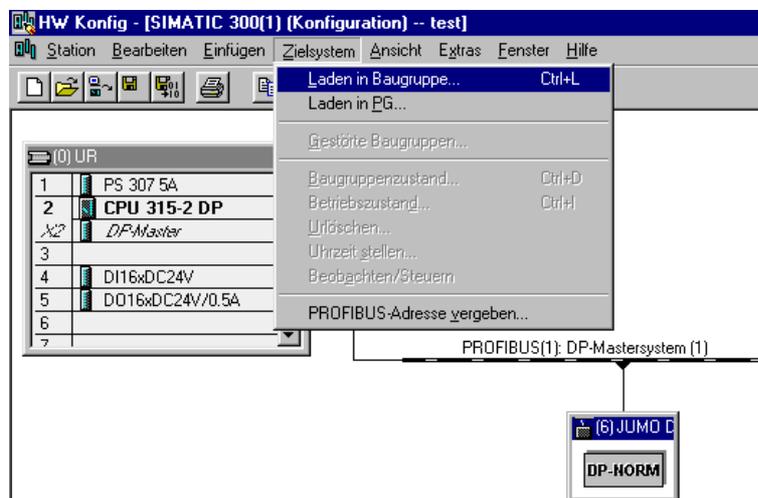
- * Open the hardware catalog and place the new device in the working area.

3 Configuration of a PROFIBUS-DP system



The master receives information on which baud rates are supported via the GSD file of the slaves.

* Load the configuration into the PLC (*Target system / Download to module*).



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

In conjunction with a SIMATIC S7, the OB86 should be installed in the PLC, so that failure of a PROFIBUS-DP device can be detected, analyzed and recorded for the specific system.

3 Configuration of a PROFIBUS-DP system



The parameter "Interface status" will automatically appear in the input window and cannot be deleted. It is used for diagnosis of the internal data transmission in the device and should be evaluated by the PLC program, so that, for instance, a communication problem within the device can be detected by the PLC master.

0: internal communication in device is ok
not equal to 0: faulty communication in device



When using devices in a PROFIBUS-DP system, please take note of their data format.

Two different data formats can be selected:

- The Intel[®] format (Little Endian)
- The Motorola[®] format (Big Endian)

Communication with a Siemens PLC is in Motorola[®] format (Big Endian) by default.

4.1 Integer values

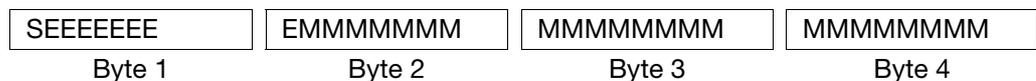
Integer values are transmitted in the following format:

	Motorola [®] format: (Big Endian)	Intel [®] format: (Little Endian)
first the	- high byte,	- low byte,
then the	- low byte.	- high byte.

4.2 Float values/ real values

The float/real values of the device are transmitted in IEEE-754 standard format (32bits).

Single-float format (32bits) as per standard IEEE 754



S - sign bit (bit31)

E - Exponent in complement to base 2 (bit23 to bit30)

M - 23-bit normalized mantissa (bit0 to bit22)

Example:

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

Byte1 = 40h, byte2 = F0, byte3 = 0, byte4 = 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 devices



The order in which the individual bytes are transmitted depends on the data format set in the configuration.

After/before the transmission from/to the device, the bytes of the float value have to be swapped accordingly.

Motorola® format (Big Endian)

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

Intel® format (Little Endian)

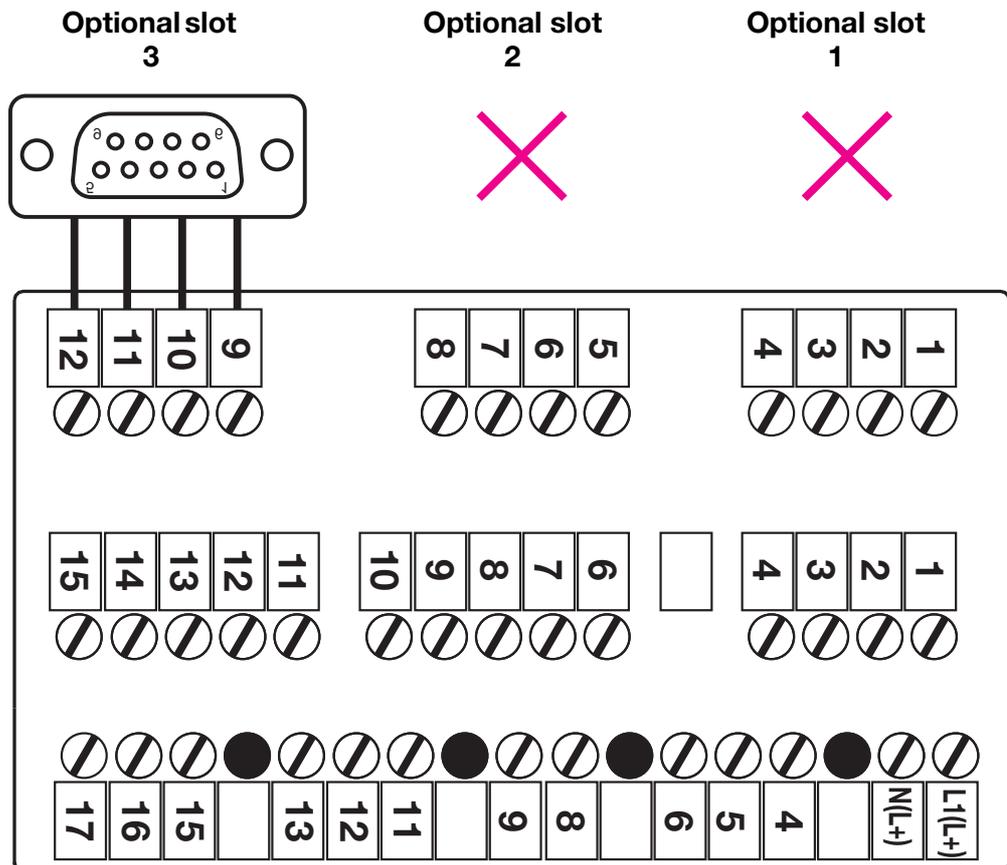
MMMMMMMM	MMMMMMMM	EMMMMMMM	SEEEEEEE
Byte 4	Byte 3	Byte 2	Byte 1

5 Device-specific information

5.1 Connection of the D-SUB socket



The optional board "Datalogger with interface RS422/485", part no. 00566678, and optional board "Interface RS422/485", part no. 00442782, and optional board "PROFIBUS-DP interface", part no. 00566679 may only be fitted once each (to optional slot 3)!



5 Device-specific information

5.2 Configuration of the interface

The parameters of the PROFIBUS interface are set on the Administrator level:

Administrator level → Interface → PROFIBUS address

Administrator level → Interface → Byte order

Configuration	Value range	Default value	Description
PROFIBUS address	0 to 126	0	
Byte order	Motorola® Intel®	Motorola®	Motorola®: Big Endian Intel®: Little Endian, See section 4 "Data format of devices", page 25.



If address 0 has been set, no communication will take place via the PROFIBUS. The device behaves as if there were no PROFIBUS interface fitted. This makes it possible to suppress the error message "PROFIBUS error" on a device with PROFIBUS interface.

The device does not support making changes in the device address!

The baud rate is determined automatically (max. 12MBit/s).

5.3 Diagnostic and status messages

If faults occur during communication with the device, the error message "PROFIBUS error" appears in the display.

- * Check the wiring, device address and the master (PLC).
It may be necessary to restart the system.



This error message can be suppressed by setting slave address 0.

When slave address 0 is set, no communication via PROFIBUS is possible.

5.3.1 Behavior in case of fault

If a fault occurs during communication, all values that were transmitted before the fault remain intact in the device.

5.4 Time grid for data processing

The device processes interface data cyclically in a time grid of 60 ms.

