3.8.3.4 Typical configuration and system requirements

General

The following systems and devices are selected as typical configuration, whereby the specified PROFIBUS addresses were randomly defined:

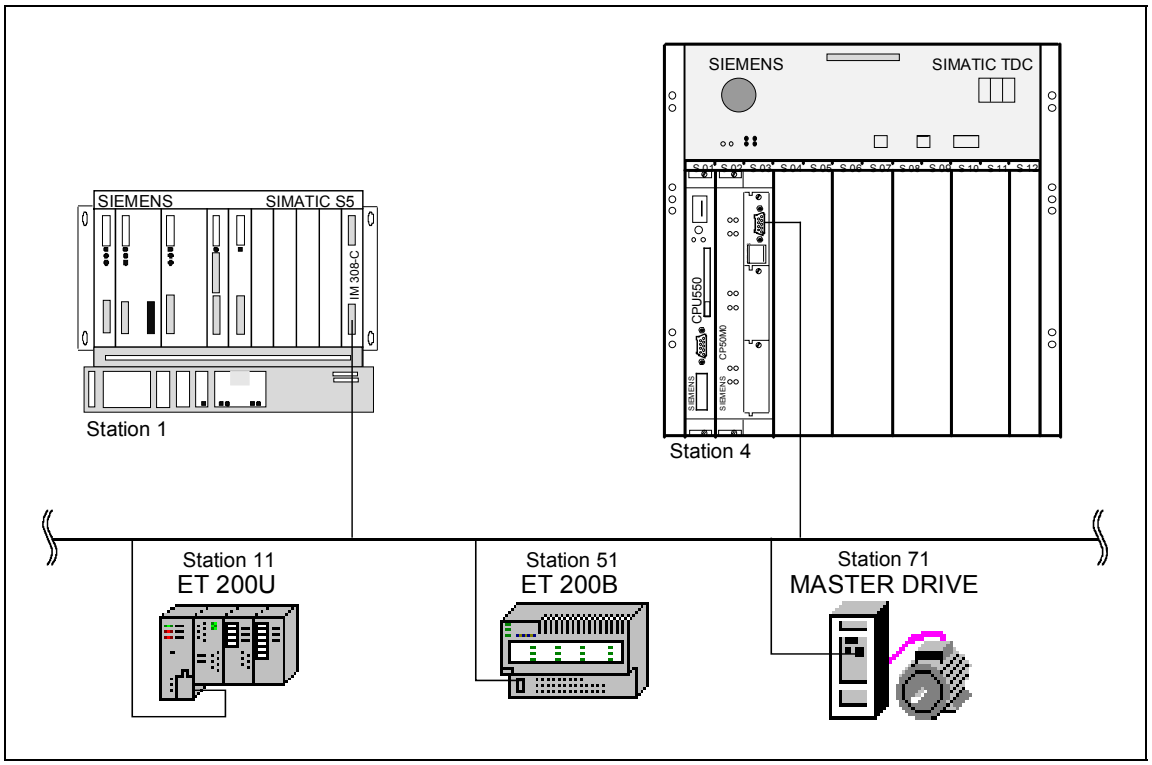


Fig. 3-31 Typical configuration

Communications partner

The SIMATIC TDC communication partners (station 4) are as follows:

- **SIMATIC S5-105U (station 1) as master to SIMATIC TDC:**
  The CP50M0 as a master (S5) which polls the SIMATIC TDC. Data transfer (quantity and amount of process data) between the two controls can be freely configured. The following was defined:
  - S5 ⇨ SIMATIC TDC: Three words (input/output), one word (input), one byte (input), one byte (input)
  - SIMATIC TDC ⇨ S5: Three words (input/output), one word (output), one byte (output)
- **SIMOVERT MASTER DRIVE with CB1 (station 71) as slave:**
  Five defined PPO types are available for data transfer with this node. PPO: Parameter process data object structure of the net data for variable-speed drives. There is net data, which either consists of parameter ID values (PKW) and process data (PZD) (PPO types 1,2,5) or only process data (PPO types 3,4).
  In this configuring example, PPO type 3 is configured. In this case, two words (control word and main setpoint) are transmitted and two words (status word and main actual value) received.

- **ET 200 B (station 51) as slave:**
  When using this slave type, a precise type must be selected which then automatically defines data transfer. For 8DI/8DO types, one byte is output and one byte is read-in.

- **ET 200 U (station 11) as slave:**
  For this ET 200 U configuration (three digital output modules and a digital input module) three bytes are output and one byte is read-in.

3.8.3.5 Check list of the required hardware and software components for SIMATIC TDC

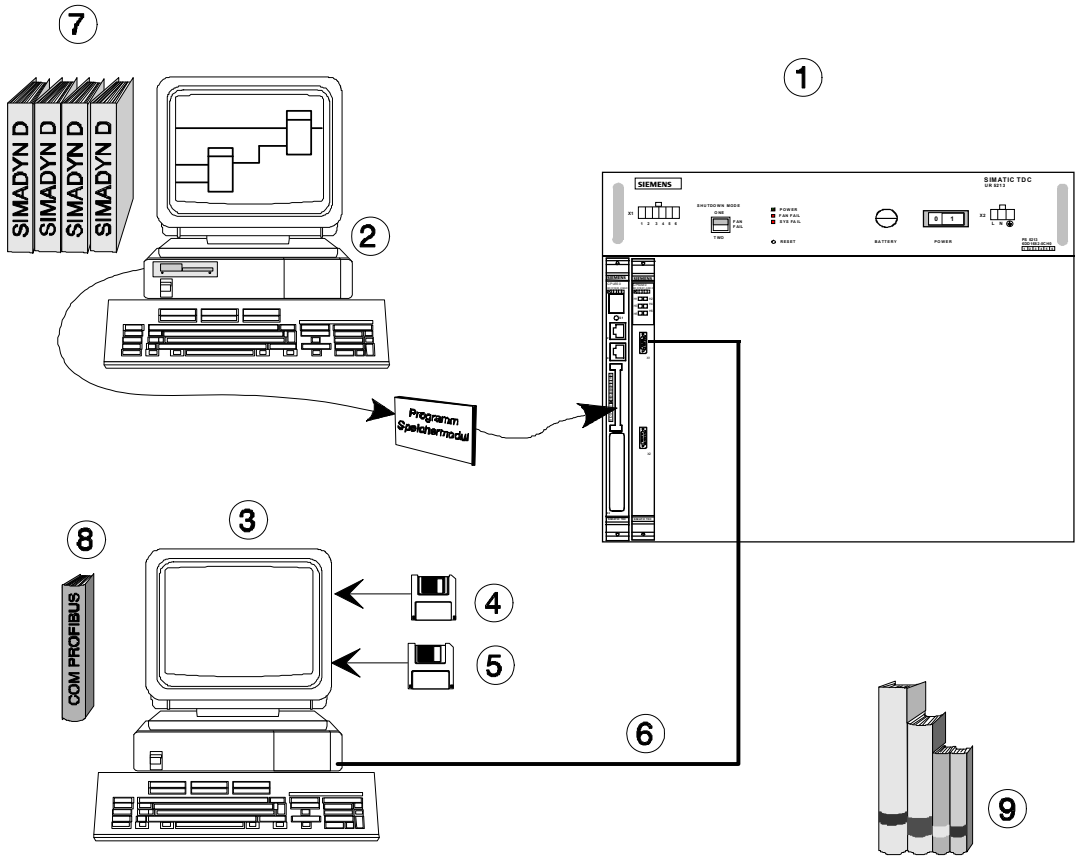


Fig. 3-32 Hardware and software components for SIMATIC TDC

Legend

1	SIMATIC TDC unit consisting of at least: Subrack, CPU, program memory sub-module, communications module CP50M0
2	CFC configuring device: PC with Windows 95/NT as operating system, STEP 7 software, option package D7-SYS and PCMCIA drive
3	PC to operate "COM PROFIBUS" and "SS52load" (this can be the same PC as for CFC), with: 3.5" floppy disk drive, one serial interface, Windows 3.1x or Windows 95 operating system
4	"COM PROFIBUS 3.0" parameterizing software: Software to generate the PROFIBUS DP bus configuration
5	Download software "SS52load": Software to transfer the DP configuration generated with "COM PROFIBUS" to CP50M0 via the COM port (RS 232) of a PC.
6	RS232 line: Connection between the CP50M0 (in every 9-pin connector of the CP50M0, in addition to the RS485 of the Profibus, there is also an RS232: 2-TxD; 7-RxD) and a PC COM port (RS232). This cable must be assembled according to the specifications (refer to Chapter Downloading the COM database onto the CP50M0) as the RS232 of the CP50M0 is not standard! If data is downloaded via the bus (RS 485), using a communications processor CP 5411 (additional plug-in card in the PC), then the "SS52load" tool and the RS232 line are not used. However, the CP 5411 is not included in this documentation.
Supplementary literature (for emergency situations and additional applications!):	
7	User Documentation SIMATIC TDC
8	Manual on the COM PROFIBUS parameterizing software
9	Manuals of the other nodes: SIMATIC S5, ET 200U, ET 200B, SIMOVERT Master Drives

Table 3-25 Legend, hardware and software components for SIMATIC TDC

3.8.3.6 Configuring under STEP 7 CFC

General

In order to simplify unified configuring of a "PROFIBUS DP coupling" under CFC, the bus-specific CFC blocks are now grouped together and the relevant syntax explained.

When configuring an CP50M0 communications interface under CFC, the following should be observed:

- Precisely one central block @PRODP must be used for each CP50M0 communications interface
- A maximum of one transmitter- and/or one receiver block per communications partner

- Permitted communication utilities:
  - process data
  - parameter processing of variable-speed drives
- Permitted data transfer mode: Refresh (for receivers, also multiple)
- A maximum of one synchronization function block SYNPRO per CP50M0 communications interface
- A maximum of one diagnostics function block DIAPRO per CP50M0 communication module

Function blocks

Central block PROFIBUS DP coupling @PRODP

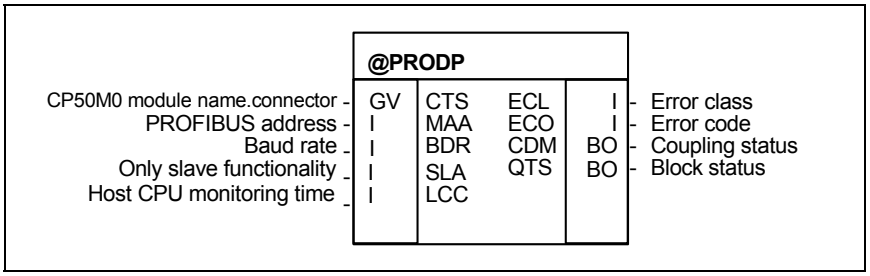


Fig. 3-33 Central block, PROFIBUS DP coupling @PRODP

- **Use**
  This function block initializes and monitors the PROFIBUS DP coupling (CP50M0). It may only be configured in a sampling time of 32 ms ≤ TA ≤ 255 ms.
- **I/O**
  ECL, ECO, CDM, QTS and YTS are service- and diagnostics I/O which are generally used for SIMATIC TDC start-up (commissioning). They are not used for configuring.

Further information
on the I/O of the central block PROFIBUS DP coupling @PRODP, refer to the User Documentation " SIMATIC TDC, function block library".

CTS	The configured name of the CP50M0 module (identical with the entry in the master program, actual: D04) and the designation of the interface (X01 or X02, actual: X02) is specified at this initialization input.
MAA	Just like all of the other bus nodes, the CP50M0 interface has a station address. This must be specified at this connector (a number between 1 and 123, actual: 4).
BDR	The baud rate, which the CP50M0 interface uses on the bus, is set using this connector. This value must be specified in a code: 0=9,6 kbaud ; 1=19,2 kbaud ; 2=93,75 kbaud ; 3=187,5 kbaud ; 4=500 kbaud ; 5=1,5 Mbaud ; 6=3 Mbaud ; 7=6 Mbaud ; 8=12 Mbaud ; (actual: 5).
SLA	Initialization input, only for slave functionality: 0: CP50M0 operates as PROFIBUS master and/or slave. A COM PROFIBUS database must be loaded. 1 or 2: SS52 operates as pure PROFIBUS slave without COM PROFIBUS database 1: Slave with either inputs or outputs, 2: Slave with inputs and outputs (actual: 0)
LCC	Initialization input for the time in which the CP50M0 monitors the SIMATIC TDC host CPU: <0: No monitoring 0...10: Monitoring time=1s (default) >10: Monitoring time in 1/10 s (actual: 0)

Table 3-26 I/O of the central PROFIBUS DP coupling block

3.8.3.7 Using transmit- and receive blocks

General

The function blocks of the communications utility, process data must be configured for PROFIBUS DP.

The address connections AT and AR of those blocks, which access the CP50M0 data interface, must have the following syntax (rules):

AT/AR- 'Channelname.Addressstage1.Adressstage2'

Channel name

- Must be unique, corresponding to the general communication rules (the channel names of all transmit- and receive blocks, which access the same CP50M0 communications interface, must be different)
- It may consist of a maximum of 8 characters
- It has no special significance for PROFIBUS DP

Address stage 1

- The PROFIBUS address of the communication partner is specified in this address stage.
- Using address 0, this channel goes to the slave and is called-up by other bus masters.
- External slaves can be addressed using addresses 3..123.

- A PROFIBUS address may only be used once for each transmit-/receive channel.

Address stage 2
This address stage is configured with one or two characters:

- **1st character:** Defines the byte order to transfer word quantities for various communication partners.
  - **1=Motorola format** (high byte before the low byte)
    Thus, it corresponds to the telegram structure of the PROFIBUS standard, and should be used as standard, especially when transferring single word quantities to standard bus nodes (analog I/O, SIMOVERT, SIMATIC etc.)
  - **0=Intel format** (low byte before the high byte)
    Can be used for data transfer to devices where data is processed according to the Intel format just like in SIMATIC TDC (e. g. second CP50M0)

Coupling partner	1st character
SIMOVERT Master Drives with CB 1 (standardized bus nodes)	1
ET200 distributed periphery (standardized bus nodes)	1
SIMATIC (IM 308 C,...) (standardized bus nodes)	1
SIMOREG 6RA24	1
MICRO / MIDI Master (standardized bus nodes)	1
SIMATIC TDC (CP50M0) (the coupling partner must also have the same setting)	0

Table 3-27 Byte order for various communication partners

- **2nd character** (optional, only for receivers):
  When an "R" is entered at a receive channel, the CP50M0 is authorized to read other slaves (shared input).

3.8.3.8 Configuring the typical configuration in CFC

General

In this case, it does not just involve process data processing, but mainly in implementing the listed communication paths to the other bus nodes.

A CFC chart with explanations shows how to configure the PROFIBUS DP. The CFC chart does not purport to include all details.

The following are to be configured:

- CPU CPU550 in slot S01 under the name D01P01:
- Communications module CP50M0 at slot S02, designation D02
- Communication interface 1 on CP50M0 connector X01