



11/2 SIMATIC TDC multiprocessor control system

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SIMATIC control systems

SIMATIC TDC multiprocessor control system

Introduction, UR6021 rack

Overview



SIMATIC TDC (Technology and Drives Control) is a digital automation system featuring very high computing power and the ability to process very large programs. An extensive library with approx. 300 ready-made function blocks is available for fast engineering.

Overview UR6021 rack



- UR6021 rack as the base component for SIMATIC TDC
- Integrated system power supply and system fan
- With high-performance 64-bit backplane bus for high-speed data exchange between the inserted modules
- Requirement for operating the CPU555

Ordering data

Article No.

SIMATIC TDC, rack UR6021

21 slots, VMEBUS, 8 P0 slots, replaceable fans, suitable for GDM, 5-row plug-in connector

Spare-part compatible successor of 6DD1682-0CH2

6DD1682-0CH3

Accessories

SIMATIC TDC slot cover SR51

6DD1682-0DA1

Spare parts

SIMATIC S7-400, buffer battery 3.6 V/2.3 Ah

For PS 405 4 A/10 A/20 A and PS 407 4 A/10 A/20 A

6ES7971-0BA00

SIMATIC TDC, fan insert

For UR6021 rack

6DD1683-0CH3

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CPU555 processor module

Overview

- Graphic freely configurable processor module
- For implementing highly dynamic open and closed-loop control functions

Ordering data**Article No.**

SIMATIC TDC, CPU555 64-bit processor module with PROFINET IRT	6DD1600-0BB0
Accessories	
SIMATIC Micro Memory Card	
SIMATIC S7, Micro Memory Card for S7-300/C7/ET 200 3, 3 V Nflash, 2 MB	6ES7953-8LL31-0AA0
SIMATIC S7, Micro Memory Card for S7-300/C7/ET 200 3, 3 V Nflash, 4 MB	6ES7953-8LM32-0AA0
SIMATIC S7, Micro Memory Card for S7-300/C7/ET 200 3, 3 V Nflash, 8 MB	6ES7953-8LP31-0AA0
Crossed twisted pair cables 4x2 with RJ45 connectors	
Industrial Ethernet TP XP cord RJ45/RJ45 Cat6A, crossed TP cable 4X2, pre-assembled with 2 RJ45 plugs, length 0.5 m.	6XV1870-3RE50
Industrial Ethernet TP XP cord RJ45/RJ45 Cat6A, crossed TP cable 4X2, pre-assembled with 2 RJ45 plugs, length 1 m.	6XV1870-3RH10
Industrial Ethernet TP XP cord RJ45/RJ45 Cat6A, crossed TP cable 4X2, pre-assembled with 2 RJ45 plugs, length 2 m.	6XV1870-3RH20
Industrial Ethernet TP XP cord RJ45/RJ45, Cat6A, crossed TP cable 4X2, pre-assembled with 2 RJ45 plugs, length 6 m.	6XV1870-3RH60
Industrial Ethernet TP XP cord RJ45/RJ45 Cat6A, crossed TP cable 4X2, pre-assembled with 2 RJ45 plugs, length 10 m.	6XV1870-3RN10

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CP50M1 communications module, CP51M1 communications module**Overview CP50M1 communications module**

The CP50M1 communications module provides two PROFIBUS DP/MPI interfaces and an 8 MB interprocessor memory for inter-CPU communication. The interfaces can be used as PROFIBUS DP master, slave, as master and slave simultaneously or as MPI node.

Overview CP51M1 communications module

The CP51M1 communications module is an Industrial Ethernet interface module for the SIMATIC TDC automation system.

Ordering data**Article No.****SIMATIC TDC CP 50M1 communications module****6DD1661-0AD1**

With 8 MB interprocessor memory, up to 1 MPI interface, up to 2 PROFIBUS DP interfaces

Ordering data**Article No.****SIMATIC TDC CP51M1 communications module****6DD1661-0AE1**

For Industrial Ethernet with TCP/IP and/or UDP

Technical specifications**Power supply**

Voltage / power supply	+5 V, 1.0 A typical
Power loss, typically	5 W
Required space / width	1 slot
Weight	0.34 kg

Technical specifications

Up-to-date technical specifications can be taken from the user documentation provided at the start of delivery

Required space / width	1 slot
Weight	
Connection for Industrial Ethernet	RJ45
Protocols	TCP/IP and/or UDP
Message frame lengths	also larger than 2 KB
Modes of transfer	Refresh, Handshake, Multiple and Select
Autosensing	for 10 Mbit or 100 Mbit network
Default router	adjustable

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CP53M0 coupling module, SM500 DI/DQ I/O module

Overview



The CP53M0 coupling module allows coupling of a SIMATIC TDC system to a SIMADYN D system for fast data exchange, e.g. when expanding existing SIMADYN D systems.

Ordering data

Article No.

SIMATIC TDC CP53M0 communications module
Rack coupling TDC <--> SIMADYN

6DD1660-0BJ0

Technical specifications

CP53M0 coupling module	
Memory	
Communication memory	SRAM, 128 KB
Communications buffer	SDRAM, 8 MB
FOC interface	
Number	2 (master mode) 1 (slave mode)
Data transfer rate	96 Mbit/s
Coding	5B/6B
Voltage, currents	
Voltages / currents	+5 V / 0.3 A 3.3 V / 0.5 A
Power loss	
Power loss, typically	3.1 W
Dimensions	
Number of slots required in rack	1
Dimensions W x H x D (in mm)	20 x 233 x 160
Weight	0.6 kg

Overview SM500 DI/DQ I/O module

The SM500 DI/DQ I/O module provides digital inputs and outputs.

Ordering data

Article No.

SIMATIC TDC SM500 DI/DQ signal module
With 16 DQ/16 DI, 6 LEDs

6DD1640-0AH1

Technical specifications

Power supply

Voltage / power supply (at 25 °C)	+5 V typically 0.4 A +3.3 V typically 0.05 A
Typical power loss	3 W
Required space / width	1 slot
Weight	0.6 kg

Digital outputs

Number	16
Galvanic isolation	Only through optional interface modules

External power supply:

• Nominal voltage	24 V
• Permissible range	20.4 V to 28.8 V
• Short-term	35 V for max. 0.5 s
• Max. current consumption, without load	40mA

Output voltage range:

• At 0 signal, max.	3 V
• At 1 signal, min.	ext. supply voltage -2.5 V

Output current:

• At 0 signal, min.	- 20 µA
• At 1 signal	
- Rated value	50 mA
- Permissible range, max.	100 mA

Delay time

Delay time	100 µs
Max. switching frequency of the outputs with resistive load	6 kHz

Short-circuit protection to

• Ground	Yes
• Ext. power supply	No

Max. short-circuit current

Max. short-circuit current	250 mA
Total current of outputs (up to 60 °C)	16 x 50mA

Limiting of inductive cut-off voltage.

Limiting of inductive cut-off voltage.	External supply voltage +1 V
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Digital inputs

Number	16
Galvanic isolation	Only through optional interface modules

Input voltage:

• Nominal voltage	24 V
• For 0 signal	-1 V to +6 V
• For 1 signal	+13.5 V to +33 V

Input current:

• At 0 signal	0 mA
• At 1 signal	3 mA

Delay time

Delay time	100 µs
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SIMATIC TDC multiprocessor control system

GlobalDataMemory

Overview



GlobalDataMemory

Data can be exchanged between all of the CPU modules in the system, over all of the networked subracks, using the memory in the GlobalDataMemory (GDM). Up to 44 subracks can be coupled in synchronism through the central memory. This means that a maximum of 836 CPU modules can be used.

Ordering data

Article No.

SIMATIC TDC CP 52M0 communications module
Memory module for Global Data Memory (GDM) with 2 MB SRAM memory

6DD1660-0BF0

SIMATIC TDC CP 52IO communications module
Interface module for Global Data Memory (GDM) with 4 interfaces

6DD1660-0BG0

SIMATIC TDC CP 52A0 communications module
Access module for Global Data Memory (GDM)

6DD1660-0BH1

Technical specifications

CP52M0

Power supply

Voltage / power supply (at 25 °C)	+5 V typically 0.4 A +3.3 V typically 0.7 A +12 V typically 0.01 A -12 V typically 0.01 A
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Power loss, typically	4.5 W
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Required space / width	1 slot
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Weight	0.6 kg
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Digital outputs

Number	16
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Galvanic isolation	No
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External power supply:	
• Nominal voltage	24 V
• Permissible range	20 to 30
• Short-term	35 V for max. 0.5 s
• Max. current consumption, without load	40 mA

Output voltage range:	
• With 0 signal, max.	3 V
• At 1 signal, min.	External supply voltage -2.5 V

Output current:	
• With 0 signal, min.	-20 µA
• At 1 signal	
- Rated value	50 mA
- Permissible range, max.	100 mA

Delay time	100 µs
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Max. switching frequency of the outputs with resistive load	6 kHz
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Short-circuit protection to	
• Ground	Yes
• External power supply	No

Max. short-circuit current	250 mA
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Total current of outputs (up to 60 °C)	16 x 50mA
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Limiting of inductive cut-off voltage.	External supply voltage +1 V
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CP52IO

Power supply

Voltage / power supply (at 25 °C)	+5 V typically 3 A +3.3 V typically 0.8 A
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Power loss, typically	18 W
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Required space / width	1 slot
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Weight	0.6 kg
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CP52A0

Power supply

Voltage / power supply (at 25 °C)	+5 V typ. 1.5 A +3.3 V typ. 0.4 A
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Power loss, typically	9 W
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Required space / width	1 slot
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Weight	0.6 kg
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SIMATIC TDC multiprocessor control system
Accessories

SC63 interface cable, SU13 interface module**Overview SC63 interface cable**

Cable for connecting the SIMATIC TDC SM500 I/O module or SIMATIC S7-400 EXM 438-1 expansion module with an SU13 interface module.

Ordering data**Article No.****SIMATIC TDC SC63 round cable****6DD1684-0GD0**

50-pin shielded, length 2 m

Overview SU13 interface module

This interface module can be used to connect 50 signals; there is no electronic conversion.

Ordering data**Article No.****SIMATIC TDC, SU13 converter****6DD1681-0GK0**

50 terminals (1:1 connection)

Technical specifications

Technical data	
Number of signal cables which can be connected	50
Signal amplitude per signal, max.	60 V, 0.5 A
Electrical isolation	No
Max. cable cross-section	1.5 mm ²
Dimensions (W x H x D) in mm	45 x 130 x 156
Weight	0.3 kg