

Siemens 6ES7414-3XJ00-0AB0 Manual

Brand	Siemens
Product Series	Siemens
Product Type	SFB

Description

6ES7414-3XJ00-0AB0 | Siemens | SIMATIC S7-400

SIMATIC S7-400, CPU 414-3 768 KB WORKING MEMORY (384 KB CODE, 384 KB DATA) 1. INTERFACE MPI/DP 12 MBIT/S 2.IF PROFIBUS DP, 3.IF FOR IFM ONLY REMAINING QUANTITY AVAIL.

CiR – Configuration in RUN

CiR synchronization time, basic load 100 ms

CiR synchronization time, time per I/O byte 120 µs

Supply voltage

Rated value (DC)

- 24 V DC Yes

Input current

from backplane bus 5 V DC, typ. 1.5 A

from backplane bus 5 V DC, max. 1.6 A; typ. 1.5 A

from backplane bus 24 V DC, max. 450 mA; Total current consumption of the components connected to the MPI/DP interfaces, but no more than 150 mA per interface

Power loss

Power loss, typ. 7.5 W

Memory

Work memory

- integrated 768 kbyte
- integrated (for program) 384 kbyte
- integrated (for data) 384 kbyte
- expandable No

Load memory

- expandable FEPR0M Yes; with Memory Card (FLASH)
- expandable FEPR0M, max. 64 Mbyte
- integrated RAM, max. 256 kbyte
- expandable RAM Yes; with Memory Card (RAM)
- expandable RAM, max. 64 Mbyte

Backup

- present Yes
- with battery Yes; all data
- without battery No

Battery

Backup battery

- Backup current, typ. 40 µA

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- Backup current, max. 420 μ A
- Feeding of external backup voltage to CPU 5 V DC to 15 V DC

CPU processing times

for bit operations, typ. 0.1 μ s

for word operations, typ. 0.1 μ s

for fixed point arithmetic, typ. 0.1 μ s

for floating point arithmetic, typ. 0.6 μ s

CPU-blocks

DB

- Number, max. 4 095; DB 0 reserved
- Size, max. 64 kbyte

FB

- Number, max. 2 048
- Size, max. 64 kbyte

FC

- Number, max. 2 048
- Size, max. 64 kbyte

OB

- Number, max. see instruction list
- Size, max. 64 kbyte
- Number of time alarm OBs 4
- Number of delay alarm OBs 4
- Number of cyclic interrupt OBs 4
- Number of process alarm OBs 4

Nesting depth

- per priority class 24
- additional within an error OB 2

Counters, timers and their retentivity

S7 counter

- Number 256

Retentivity

- adjustable Yes
- lower limit 0
- upper limit 255
- preset Z 0 to Z 7

Counting range

- lower limit 1
- upper limit 999

IEC counter

- present Yes
- Type SFB

S7 times

- Number 256

Retentivity

- adjustable Yes
- lower limit 0
- upper limit 255
- preset No retentivity

Time range

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- lower limit 10 ms
- upper limit 9 990 s

IEC timer

- present Yes
- Type SFB

Data areas and their retentivity

retentive data area in total Total working and load memory (with backup battery)

Flag

- Number, max. 8 kbyte
- Retentivity available Yes; from MB 0 to MB 8191
- Retentivity preset MB 0 to MB 15
- Number of clock memories 8; 1 memory byte

Data blocks

- Number, max. 4 096; DB 0 reserved
- Size, max. 64 kbyte

Address area

I/O address area

- Inputs 8 kbyte
- Outputs 8 kbyte

of which distributed

- MPI/DP interface, inputs 2 kbyte
- MPI/DP interface, outputs 2 kbyte
- DP interface, inputs 6 kbyte
- DP interface, outputs 6 kbyte

Process image

- Inputs, adjustable 8 kbyte; adjustable at the expense of the code area of the RAM
- Outputs, adjustable 8 kbyte; adjustable at the expense of the code area of the RAM
- Inputs, default 256 byte
- Outputs, default 256 byte
- consistent data, max. 244 byte
- Access to consistent data in process image Yes

Subprocess images

- Number of subprocess images, max. 8

Digital channels

- Inputs 65 536
- of which central 65 536
- Outputs 65 536
- of which central 65 536

Analog channels

- Inputs 4 096
- of which central 4 096
- Outputs 4 096
- of which central 4 096

Hardware configuration

Number of expansion units, max. 21; of which 6 ER with K-bus

connectable OPs 31 without message processing, 8 with message processing

Multicomputing Yes; 4 CPUs max. (with UR1 or UR2)

Interface modules

- Number of connectable IMs (total), max. 6
- Number of connectable IM 460s, max. 6

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- Number of connectable IM 463s, max. 4; IM 463-2

Number of DP masters

- integrated 2
- via CP 10
- via IM 467 4
- Mixed mode IM + CP permitted No; IM 467 cannot be used jointly with CP 443-5 Ext.
- via interface module 1

Number of pluggable S5 modules (via adapter capsule in central device), max.

6

Number of operable FMs and CPs (recommended)

- FM 32; Limited by number of slots and number of connections
- CP, PtP 32; limited by number of slots
- CP, LAN 32; limited by number of connections
- PROFIBUS and Ethernet CPs 14; incl. CP 443-5 Ext. and IM 467

Slots

- required slots 2

Time of day

Clock

- Hardware clock (real-time) Yes
- retentive and synchronizable Yes
- Resolution 1 ms

Operating hours counter

- Number 8

Clock synchronization

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- supported Yes
- to MPI, master Yes
- to MPI, slave Yes
- to DP, master Yes
- to DP, slave Yes
- in AS, master Yes
- in AS, slave Yes
- to IF 964 DP Yes; as Master or Slave

1. Interface

Physics RS 485 / PROFIBUS

Isolated Yes

Number of connection resources MPI: 32, DP: 16

Functionality

- MPI Yes
- PROFIBUS DP master Yes
- PROFIBUS DP slave Yes

MPI

- Number of connections 32
- Transmission rate, max. 12 Mbit/s

Services

- PG/OP communication Yes
- Routing Yes
- Global data communication Yes
- S7 basic communication Yes

— S7 communication Yes

DP master

- Number of connections, max. 16
- Transmission rate, max. 12 Mbit/s
- Number of DP slaves, max. 32

Services

- PG/OP communication Yes
- Routing Yes
- Global data communication No
- S7 basic communication No
- S7 communication Yes
- Equidistance Yes
- SYNC/FREEZE Yes
- Activation/deactivation of DP slaves Yes
- Direct data exchange (slave-to-slave communication)

Yes

Address area

Inputs, max. 2 kbyte

— Outputs, max. 2 kbyte

User data per DP slave

- Inputs, max. 244 byte
- Outputs, max. 244 byte
- Slots, max. 244
- per slot, max. 128 byte

DP slave

- Transmission rate, max. 12 Mbit/s
- Address area, max. 32
- User data per address area, max. 32 byte
- of which consistent, max. 32 byte

Services

- PG/OP communication Yes; with interface active
- Routing Yes; with interface active

Transfer memory

- Inputs 244 byte
- Outputs 244 byte

2. Interface

Physics RS 485 / PROFIBUS

Isolated Yes

Number of connection resources 16

Functionality

- PROFIBUS DP master Yes
- PROFIBUS DP slave Yes

DP master

- Number of connections, max. 16
- Transmission rate, max. 12 Mbit/s
- Number of DP slaves, max. 96

Services

- PG/OP communication Yes

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— Routing Yes
 — Global data communication No
 — S7 basic communication No
 — S7 communication Yes
 — Equidistance Yes
 — SYNC/FREEZE Yes
 — Activation/deactivation of DP slaves Yes
 — Direct data exchange (slave-to-slave communication)
 Yes
 Address area

— Inputs, max. 6 kbyte
 — Outputs, max. 6 kbyte
 User data per DP slave
 — Inputs, max. 128 byte
 — Outputs, max. 128 byte

DP slave

- Transmission rate, max. 12 Mbit/s
- Address area, max. 32
- User data per address area, max. 32 byte
- of which consistent, max. 32 byte

Services

— Routing Yes; with interface active

Transfer memory

— Inputs 244 byte
 — Outputs 244 byte

3. Interface

Interface type Pluggable interface module (IF), technical data as for 2nd interface

Plug-in interface modules IF 964-DP

Isochronous mode

Isochronous operation (application synchronized up to terminal)

Yes

User data per isochronous slave, max. 128 byte

Equidistance Yes

shortest clock pulse 5 ms; 2.5 ms without using the SFCs 126 / 127

Communication functions

PG/OP communication Yes

Global data communication

- supported Yes
- Number of GD packets, transmitter, max. 8
- Number of GD packets, receiver, max. 16
- Size of GD packets, max. 64 byte

S7 basic communication

- supported Yes
- User data per job, max. 76 byte

S7 communication

- supported Yes
- as server Yes

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- as client Yes
 - User data per job, max. 64 kbyte
- S5 compatible communication

- supported Yes; via CP and FC AG_SEND and FC AG_RECV
- User data per job, max. 8 kbyte

Standard communication (FMS)

- supported Yes; Via CP and loadable FB

Number of connections

- overall 32; of which one is reserved for PG and OP
- usable for PG communication
 - reserved for PG communication 1
 - adjustable for PG communication, max. 0
- usable for OP communication
 - reserved for OP communication 1
 - adjustable for OP communication, max. 0
- usable for S7 basic communication
 - reserved for S7 basic communication 0
 - adjustable for S7 basic communication, max. 0

- usable for S7 communication
 - reserved for S7 communication 0
 - adjustable for S7 communication, max. 0
- usable for routing
 - reserved for routing 0
 - adjustable for routing, max. 0

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S7 message functions

Number of login stations for message functions, max. 8

Symbol-related messages Yes

Block related messages Yes

Alarm 8-blocks Yes

Process control messages Yes

Test commissioning functions

Status block Yes

Single step Yes

Number of breakpoints 4

Status/control

- Status/control variable Yes

Forcing

- Forcing Yes

Diagnostic buffer

- present Yes
- Number of entries, max. 3 200
- adjustable Yes

Configuration

Configuration software

- STEP 7 Yes

Programming

- Nesting levels 8

Programming language

— LAD Yes

— FBD Yes

— STL Yes

— SCL Yes

— CFC Yes

— GRAPH Yes

— HiGraph® Yes

Know-how protection

- User program protection/password protection Yes

Dimensions

Width 50 mm

Height 290 mm

Depth 219 mm

Weights

Weight, approx. 1 070 g

Technical Specifications

interface

Plug-in interface modules IF 964-DP

Isochronous mode

Isochronous operation (application synchronized up

to terminal)

Yes

User data per isochronous slave, max. 128 byte

Equidistance Yes

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Communication functions

PG/OP communication Yes

Global data communication

- supported Yes
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S7 basic communication

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S7 communication

- supported Yes
- as server Yes
- as client Yes
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S5 compatible communication

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