## **Data sheet**

## 6ES7412-2XJ05-0AB0



\*\*\*\*\*\*\*\*\*\*\* Replacement part \*\*\*\*\*\*\*\*\* SIMATIC S7-400, CPU 412-2 Central processing unit with: work memory 512 KB, (256 KB code, 256 KB of data), 1st interface MPI/DP 12 Mbit/s, 2nd interface PROFIBUS DP

General information	
Product type designation	CPU 412-2
Product function	·
Isochronous mode	Yes; For PROFIBUS only
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.3 SP2 or higher with HW update
CiR - Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	30 µs
Supply voltage	
Rated value (DC)	Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	0.9 A
from backplane bus 5 V DC, max.	1.1 A
from backplane bus 24 V DC, max.	300 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	4.5 W
Power loss, max.	5 W
Memory	
Type of memory	RAM
Work memory	
<ul><li>integrated</li></ul>	512 kbyte
<ul><li>integrated (for program)</li></ul>	256 kbyte
<ul><li>integrated (for data)</li></ul>	256 kbyte
expandable	No
Load memory	
<ul><li>expandable FEPROM</li></ul>	Yes; with Memory Card (FLASH)
<ul> <li>expandable FEPROM, max.</li> </ul>	64 Mbyte
<ul><li>integrated RAM, max.</li></ul>	512 kbyte
<ul><li>expandable RAM</li></ul>	Yes; with Memory Card (RAM)
expandable RAM, max.	64 Mbyte
Backup	V.
• present	Yes
with battery	Yes; all data
without battery	No
Battery	

Packup hattony	
Backup battery     Backup current, typ.	125 μA; up to 40 °C
Backup current, max.	550 μA
Backup time, max.	See reference manual, module data, Chapter 3.3
Feeding of external backup voltage to CPU	5 V DC to 15 V DC
CPU processing times	3 V DC to 13 V DC
	75 00
for bit operations, typ.	75 ns
for word operations, typ.	75 ns
for fixed point arithmetic, typ.	75 ns
for floating point arithmetic, typ.	225 ns
CPU-blocks	
DB	0.000 N
Number, max.	3 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	4 700 N
Number, max.	1 500; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	4 F00. Number 2000 0 to 7000
Number, max.     Size may.	1 500; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	and instruction list
Number, max.     Size may.	see instruction list
Size, max.  Number of free guele ODs	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	2; OB 10, 11
Number of delay alarm OBs	2; OB 20, 21
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	2; OB 32, 35 (shortest cycle that can be set = 500 μs)
<ul> <li>Number of process alarm OBs</li> </ul>	2; OB 40, 41
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3; OB 55-57
<ul> <li>Number of isochronous mode OBs</li> </ul>	2; OB 61-62
<ul> <li>Number of multicomputing OBs</li> </ul>	1; OB 60
<ul> <li>Number of background OBs</li> </ul>	1; OB 90
<ul> <li>Number of startup OBs</li> </ul>	3; OB 100-102
<ul> <li>Number of asynchronous error OBs</li> </ul>	9; OB 80-88
Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
<ul> <li>per priority class</li> </ul>	24
<ul> <li>additional within an error OB</li> </ul>	1
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0

— upper limit	2 047
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
<ul><li>present</li></ul>	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Flag	
• Size, max.	4 kbyte; Size of bit memory address area
Retentivity available	Yes
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; in 1 memory byte
Local data	o, in a memory byte
adjustable, max.	8 kbyte
• preset	4 kbyte
Address area	
I/O address area	
<ul><li>Inputs</li></ul>	4 kbyte
Outputs	4 kbyte
Process image	
<ul> <li>Inputs, adjustable</li> </ul>	4 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	4 kbyte
<ul> <li>Inputs, default</li> </ul>	128 byte
<ul> <li>Outputs, default</li> </ul>	128 byte
<ul> <li>consistent data, max.</li> </ul>	244 byte
<ul> <li>Access to consistent data in process image</li> </ul>	Yes
Subprocess images	
<ul> <li>Number of subprocess images, max.</li> </ul>	15
Digital channels	
• Inputs	32 768
— of which central	32 768
<ul><li>Outputs</li></ul>	32 768
of which central	32 768
Analog channels	
• Inputs	2 048
— of which central	2 048
Outputs	2 048
— of which central	2 048
Hardware configuration	No
Integrated power supply	No Od
Number of expansion units, max.	21
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
Number of connectable IM 463s, max.	4; IM 463-2
Number of DP masters	
<ul><li>integrated</li></ul>	2
• via CP	10; CP 443-5 Extended
<ul> <li>via IM 467</li> </ul>	4
Mixed mode IM + CP permitted	No; IM 467 not suitable for use with CP 443-5 Ext. and CP 443-1 EX4x, EX20, GX20 (in PROFINET IO mode)
• via interface module	
	EX20, GX20 (in PROFINET IO mode)

Number of IO Controllers	
<ul><li>integrated</li></ul>	0
• via CP	4; No mixed operation of CP443-1 EX40 and CP443-1 EX 41/EX20/GX20, max. 4 in central controller
Number of operable FMs and CPs (recommended)	
• FM	Limited by number of slots and number of connections
• CP, PtP	CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections
PROFIBUS and Ethernet CPs	14; Of which 10 CPs max. or IMs as DP master, 4 PROFINET controller maximum
Slots	
required slots	1
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
<ul> <li>Resolution</li> </ul>	1 ms
<ul> <li>Deviation per day (buffered), max.</li> </ul>	1.7 s; Power off
<ul> <li>Deviation per day (unbuffered), max.</li> </ul>	8.6 s; For power On
Operating hours counter	
Number	16
Number/Number range	0 to 15
Range of values	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours
Granularity	1 h
• retentive	Yes
Clock synchronization	165
• 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
on Ethernet via NTP	No; Via CP
Time difference in system when synchronizing via	
• MPI, max.	200 ms
nterfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFIBUS DP
Number of RS 485 interfaces	2; Combined MPI / PROFIBUS DP and PROFIBUS DP
Optical interface	No
I. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
MPI	163
Number of connections	32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Routing      — Global data communication	Yes
<ul> <li>— S7 basic communication</li> </ul>	Yes

• RS 485	Yes
Interface types	Voe
	1 53
Interface type Isolated	Yes
	PROFIBUS DP
2. Interface	,.
— Outputs	244 byte
— Inputs	244 byte
Transfer memory	
communication) — DPV1	No
Direct data exchange (slave-to-slave communication)	No
<ul> <li>S7 communication, as server</li> </ul>	Yes
<ul> <li>S7 communication, as client</li> </ul>	Yes
— S7 communication	Yes
<ul> <li>S7 basic communication</li> </ul>	No
<ul> <li>Global data communication</li> </ul>	No
— Routing	Yes; with interface active
— PG/OP communication	Yes; with interface active
Services	
— of which consistent, max.	32 byte
<ul> <li>User data per address area, max.</li> </ul>	32 byte
Address area, max.	32; Virtual slots
automatic baud rate search	No
Transmission rate, max.	12 Mbit/s
GSD file	http://support.automation.siemens.com/WW/view/en/113652
Number of connections	16
PROFIBUS DP slave	
— per slot, max.	128 byte
— Slots, max.	244
— Outputs, max.	244 byte
— Oser data per DF slave, max. — Inputs, max.	244 byte
User data per DP slave, max.	244 byte
User data per DP slave	Litoyio
<ul><li>— Inputs, max.</li><li>— Outputs, max.</li></ul>	2 kbyte 2 kbyte
	2 khyte
Address area	160
— DPV1	Yes
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
Activation/deactivation of DP slaves	Yes
— SYNC/FREEZE	Yes
— Isochronous mode	Yes
— Equidistance	Yes
— S7 communication, as server	Yes
— S7 communication, as client	Yes
— S7 communication	Yes
— S7 basic communication	Yes
<ul> <li>Global data communication</li> </ul>	No
— Routing	Yes; S7 routing
— PG/OP communication	Yes
Services	
Number of DP slaves, max.	32
• Transmission rate, max.	12 Mbit/s
	connection resources on the line is reduced by 1
Number of connections, max.	16; If a diagnostics repeater is used on the line, the number of
PROFIBUS DP master	
— S7 communication, as server	Yes
<ul> <li>— S7 communication, as client</li> </ul>	Yes
— S7 communication	Yes

Output current of the interface, max.  Protocols  PROFIBUS DP master PROFIBUS DP slave  PROFIBUS DP master  Number of connections, max. Transmission rate, max. Number of DP slaves, max.  Number of DP slaves, max.  PG/OP communication PG/OP communication PG/OP communication PS7 basic communication PS7 communication PS7 communication PS7 communication, as client PS7 communication, as server PS0 mA  Yes Yes Yes Yes  Yes  150 mA  Yes  Yes  Yes  PROFIBUS DP master Yes  12 Mbit/s  64  Services  Yes  PG/OP communication Yes  Yes; S7 routing No Yes  Yes  S7 communication Yes  Yes  S7 communication Yes  Yes  Yes  Yes	
<ul> <li>PROFIBUS DP slave</li> <li>PROFIBUS DP master</li> <li>Number of connections, max.</li> <li>Transmission rate, max.</li> <li>Number of DP slaves, max.</li> <li>Number of DP slaves, max.</li> <li>Services</li> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>Yes</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> <li>Yes</li> </ul>	
PROFIBUS DP master  Number of connections, max. Transmission rate, max. Number of DP slaves, max.  PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server Yes	
<ul> <li>Number of connections, max.</li> <li>Transmission rate, max.</li> <li>Number of DP slaves, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— S7 communication, as client</li> <li>— S7 communication, as server</li> </ul>	
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Services	
<ul> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>Yes</li> <li>S7 communication</li> <li>Yes</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> <li>Yes</li> </ul>	
<ul> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>Yes</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> <li>Yes</li> <li>Yes</li> </ul>	
<ul> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>Yes</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> <li>Yes</li> <li>Yes</li> </ul>	
<ul> <li>— S7 communication</li> <li>— S7 communication, as client</li> <li>— S7 communication, as server</li> <li>Yes</li> <li>— Yes</li> </ul>	
<ul><li>— S7 communication, as client</li><li>— S7 communication, as server</li><li>Yes</li><li>Yes</li></ul>	
— S7 communication, as server Yes	
— S7 communication, as server Yes	
— Equidistance Yes	
— Isochronous mode Yes	
— SYNC/FREEZE Yes	
Activation/deactivation of DP slaves  Yes	
— Direct data exchange (slave-to-slave Yes	
communication)	
— DPV1 Yes	
Address area	
— Inputs, max. 4 kbyte	
— Outputs, max. 4 kbyte	
User data per DP slave	
— User data per DP slave, max. 244 byte	
— Inputs, max. 244 byte	
— Outputs, max. 244 byte	
— Slots, max. 244	
— per slot, max. 128 byte	
PROFIBUS DP slave	
Number of connections     16	
GSD file <a href="http://support.automation.siemens.com/WW/view/en/11365">http://support.automation.siemens.com/WW/view/en/11365</a>	52
• 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	
Transfer memory	
— Inputs 244 byte	
— Outputs 244 byte	
Protocols	
SIMATIC communication  • S7 routing	
S7 routing     Yes  Open IF communication	
Open IE communication  Via CP 443.1 and leadable EP	
• ISO-on-TCP (RFC1006) Via CP 443-1 and loadable FB	
— Data length, max. 1 452 bytes via CP 443-1 Adv.	
Web server	
Web server  ◆ supported No	
Web server  • supported  No  Isochronous mode	
Web server	
Web server   ◆ supported No   Isochronous mode   Equidistance Yes   Number of DP masters with isochronous mode 2	
Web server	
Web server	

Communication functions	
PG/OP communication	Yes
Number of connectable OPs without message processing	31
Number of connectable OPs with message processing	31; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	100
supported	Yes
Number of GD loops, max.	8
Number of GD packets, transmitter, max.	8
•	
Number of GD packets, receiver, max.     Size of CD packets, max.	16
Size of GD packets, max.  Size of GD packet (of which consistent) may	54 byte
Size of GD packet (of which consistent), max.	1 variable
S7 basic communication	V
• supported	Yes
User data per job, max.	76 byte
User data per job (of which consistent), max.	1 variable
S7 communication	Ver
• supported	Yes
• as server	Yes
• as client	Yes
<ul> <li>User data per job, max.</li> </ul>	64 kbyte
User data per job (of which consistent), max.	462 byte; 1 variable
S5 compatible communication	
<ul><li>supported</li></ul>	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5
<ul> <li>User data per job, max.</li> </ul>	8 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	240 byte
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	
<ul><li>overall</li></ul>	32
<ul> <li>usable for PG communication</li> </ul>	31
<ul> <li>reserved for PG communication</li> </ul>	1
<ul> <li>adjustable for PG communication, max.</li> </ul>	0
<ul> <li>usable for OP communication</li> </ul>	31
<ul> <li>reserved for OP communication</li> </ul>	1
<ul> <li>adjustable for OP communication, max.</li> </ul>	0
usable for S7 basic communication	30
<ul> <li>reserved for S7 basic communication</li> </ul>	0
<ul> <li>adjustable for S7 basic communication, max.</li> </ul>	0
usable for S7 communication	30
— reserved for S7 communication	0
adjustable for S7 communication, max.	0
usable for routing	15
— reserved for routing	0
adjustable for routing, max.	0
S7 message functions	
Number of login stations for message functions, max.	31; Max. 31 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with
Number of login stations for message functions, max.	Alarm_8 and Alarm_P (e.g. WinCC)
Symbol-related messages	Yes
SCAN procedure	Yes
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes
<ul> <li>Number of instances for alarm 8 and S7 communication blocks, max.</li> </ul>	300
• preset, max.	150

Number of archives that can log on simultaneously (SFB 37 AR, SEND)   Number of messages	Process control messages	Yes
37 AR_SEND	-	
Number of messages	37 AR_SEND)	
in 100 ms grid, max.   256	Number of messages	
in is 500 ms grid, max.   256	overall, max.	256
	● in 100 ms grid, max.	0
		256
Number of additional values		256
• with 500, 1000 ms grid, max.  Test commissioning functions  Status block Single step Number of breakpoints  • Status/control variable • Status/control variable • Variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  64  Diagnostic buffer • present • Number of variables, max.  Diagnostic buffer • present • Present • Number of entries, max.  - adjustable - present • Number of entries, max.  - adjustable - present • Ves - present • 120  Service data • can be read out • Yes  Standards, approvals, cortificates  CE mark  CSA approval  UL approval  UL approval  Ves  CLUus • Pes  FM approval  ACM (formerly C-TICK)  Yes  RCA (promerly C-TICK)  Yes  LSE (Industry County County County)  Ves  LSE (Industry County County)  Ves  LSE (Industry County County)  Ves  LSE (Industry County County)  Ves  ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation • min. • max. • O °C  Configuration  Configuration  Configuration software • STEP 7  Programming • Command set • Nesting levels • System function blocks (SFB)  Programming language  - LAD  Yes		
• with 500, 1000 ms grid, max.  Test commissioning functions  Status block Single step Number of breakpoints  • Status/control variable • Status/control variable • Variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  64  Diagnostic buffer • present • Number of variables, max.  Diagnostic buffer • present • Present • Number of entries, max.  - adjustable - present • Number of entries, max.  - adjustable - present • Ves - present • 120  Service data • can be read out • Yes  Standards, approvals, cortificates  CE mark  CSA approval  UL approval  UL approval  Ves  CLUus • Pes  FM approval  ACM (formerly C-TICK)  Yes  RCA (promerly C-TICK)  Yes  LSE (Industry County County County)  Ves  LSE (Industry County County)  Ves  LSE (Industry County County)  Ves  LSE (Industry County County)  Ves  ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation • min. • max. • O °C  Configuration  Configuration  Configuration software • STEP 7  Programming • Command set • Nesting levels • System function blocks (SFB)  Programming language  - LAD  Yes	• with 100 ms grid, max.	0
Test commissioning functions  Status block Single step Yes Number of breakpoints  • Status/control variable • Status/control variable • Variables • Number of variables, max.  Forcing • Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  64  Diagnostic buffer • present • Number of entries, max.  — adjustable — preset • 20  Standards, approvals, certificates  CE mark  CSA approval  UL approval  UL approval  UL approval  Ves  FM approval  FM approval  FM approval  FM growning-Gost-R)  KC approval  Pes  ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient temperature during operation • min. • max  Configuration  C	_	1
Status block Single step Yes Number of breakpoints 4 Status/control variable • Status/control variable • Status/control variables, max.  • Status/control variables, max.  • Number of variables, max.  • Forcing • Forcing, variables • Number of variables, max.  • Forcing variables • Number of variables, max.  • Forcing variables • Number of variables, max.  • All present • Present • Present • Number of variables, max.  • All present • Present • Present • Number of variables, max.  • All present • Present • Number of variables, max.  • All present • Present • Present • Number of variables, max.  • All present • Present • Number of variables, max.  • All present • Present • Present • Present • Number of variables, max.  • All present • Present • Present • Present • Number of variables, max.  • All present • Present • Present • Number of variables, max.  • All present • Present		
Single step  Number of breakpoints  • Status/control  • Status/control variable • Variables • Number of variables, max.  • Number of variables, max.  • Forcing • Forcing • Forcing, variables • Number of variables, max.  • Forcing • Forcing, variables • Number of variables, max.  • Augustable • present • ves • preset • 120  • Service data • can be read out • Yes  Standards, approvals, certificates  CE mark  CSA approval  UL approval  Ves  CULus • Pes  FM approval  Ves  FAC (formerly C-TICK)  Ves  EAC (formerly Gost-R)  Use in hazardous areas • ATEX  ATEX  ATEX  ATEX  ATEX  ATEX  ATEX  ANDIENT CANADA  Ambient conditions  Ambient temperature during operation • min. • max. • Configuration  Configuration  Configuration  Configuration software • STEP 7  Programming • Command set • Nesting levels • Access to consistent data in process image • System function blocks (SFB)  Programming language  — LAD  Yes  Programming language  — LAD  Yes		Yes: Up to 2 simultaneously
Number of breakpoints  Status/control variable  Status/control variable  Status/control variable  Number of variables, max.  Forcing  Forcing  Forcing, variables, max.  Forcing variables, max.  Forcing variables, max.  Forcing variables, max.  Forcing variables, max.  Number of variables.  Number of var		
Status/control Status/control variable Status/control variables Variables Number of variables, max.  Forcing Forcing Forcing, variables, max.  Forcing Forcing, variables, max.  Forcing Forcing, variables, max.  Diagnostic buffer  Present Number of variables, max.  Diagnostic buffer Present Number of entries, max.  — adjustable — preset Number of entries, max.  — adjustable — yes  Standards, approvals, certificates  CE mark  CSA approval Ves CL mark  CSA approval Ves  CULus  Ves  RCM (tormerly C-TICK) Yes  RCM (tormerly C-TICK) Yes  RCM (tormerly Gost-R) Use in hazardous areas  — ATEX ATEX ATEX ATEX II 3G Ex nA IIC T4 GC  Ambient conditions  Anbient temperature during operation — mix. — o "C Configuration Configuration Configuration Configuration Configuration Software  — STEP 7  Programming — Command set — Nesting levels — Access to consistent data in process image — System function blocks (SFB) Programming language — LAD  Yes		
Status/control variable Variables Variables Variables Number of variables, max.  Forcing Forcing Forcing Forcing, variables Number of variables, max.  Forcing Forcing, variables Number of variables, max.  Pages of variables Number of entries, max.  Pages of variables Number of entries, max.  Pages of variables Number of variables, max.  Pages of variables Number of variables, max.  Pages of variables, max.  Pages of variables, max.  Pages of variables, obs., ob		<u> </u>
Variables Number of variables, max.  Number of variables, max.  Forcing Forcing Forcing Forcing Forcing, Forci		Yes: Up to 16 variable tables
Forcing Forcing Forcing Forcing Forcing, variables, max. Forcing Forcing, variables, max.  Forcing Forcing, variables, max.  Forcing Forcing, variables, max.  Forcing Forcing Forcing, variables, max.  Forcing Forci		
Forcing  Forcing Forcing Forcing, variables Forcing, variables Number of variables, max.  Forcing, variables Number of variables, max.  Forcing, variables Forcing, variables Number of variables, max.  Forcing variables Forcing, variables, varia		
• Forcing, variables • Number of variables, max.  • Number of variables, max.  • Number of entries, max.  - adjustable  - preset  • Number of entries, max.  - adjustable  - preset  120  Service data  • can be read out  Standards, approvals, certificates  CE mark  CSA approval  UL approval  UL approval  Ves  FM approval  Yes  CKC approval  FM approval  EAC (formerly C-TICK)  Wes  EAC (formerly Gost-R)  Use in hazardous areas  • ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient conditions  Ambient temperature during operation  • min.  • or C  onfiguration software  • STEP 7  Programming  • Command set  • Access to consistent data in process image  • System functions (SFC)  • see instruction list  Programming language  — LAD  Yes  Inputs, outputs, bit memories, peripheral inputs, peripheral outputs  64  400  -		Yes
Number of variables, max.     Diagnostic buffer           present	3	
Diagnostic buffer	-	
<ul> <li>● present</li> <li>● Number of entries, max.</li> <li>400</li> <li>— adjustable</li> <li>— preset</li> <li>120</li> <li>Service data</li> <li>● can be read out</li> <li>Yes</li> <li>Standards, approvals, certificates</li> <li>CE mark</li> <li>CSA approval</li> <li>UL approval</li> <li>Yes</li> <li>CULLus</li> <li>FM approval</li> <li>Yes</li> <li>RCM (formerly C-TICK)</li> <li>Yes</li> <li>RCA (promerly G-TICK)</li> <li>Yes</li> <li>Use in hazardous areas</li> <li>● ATEX</li> <li>ATEX</li> <li>ATEX II 3G Ex nA IIC T4 Gc</li> <li>Ambient conditions</li> <li>Ambient temperature during operation</li> <li>● min.</li> <li>● max.</li> <li>60 °C</li> <li>Configuration</li> <li>Configuration</li> <li>Configuration software</li> <li>● STEP 7</li> <li>Yes</li> <li>Programming</li> <li>● Command set</li> <li>● Nesting levels</li> <li>Programming ves</li> <li>• System functions (SFC)</li> <li>see instruction list</li> <li>Programming language</li> <li>— LAD</li> <li>Yes</li> </ul>		
Number of entries, max.     — adjustable     — preset     — preset     120  Service data     • can be read out     Yes  Standards, approvals, certificates  CE mark     CSA approval     UL approval     Ves  CUL us     Yes  CM (formerly C-TICK)     Yes  EAC (formerly Gost-R)     Wes  EAC (formerly Gost-R)  Use in hazardous areas     • ATEX     ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation     • min.     • max.     60 °C  Configuration  Configuration  Configuration software     • STEP 7  Programming     • Command set     • Nesting levels     • Access to consistent data in process image     • System function blocks (SFB)     Programming language     — LAD     Yes  Ves  120  Yes  120  Yes  Yes  Yes  Ambient temperature during operation  See instruction list  Yes  See instruction list  See instruction list  See instruction list  System function s(SFC)  See instruction list  Programming language  — LAD  Yes	-	Yes
adjustable	•	
Service data  • can be read out  Standards, approvals, certificates  CE mark  CSA approval  UL approval  Ves  CULLus  FM approval  RCM (formerly C-TICK)  KC approval  SEAC (formerly Gost-R)  Use in hazardous areas  • ATEX  ATEX ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min.  • max.  60 °C  Configuration  Configuration  Configuration software  • STEP 7  Programming  • Command set  • Nesting levels  • Access to consistent data in process image  • System functions (SFC)  • System function block (SFB)  Programming language  — LAD  Yes	•	
Service data	-	
• can be read out  Standards, approvals, certificates  CE mark  CSA approval  UL approval  Ves  CULus  FM approval  KC approval  Yes  RCM (formerly C-TICK)  Yes  EAC (formerly Gost-R)  Use in hazardous areas  • ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min.  • max.  • STEP 7  Programming  • Command set  • Nesting levels  • Access to consistent data in process image  • System function list  System function locks (SFB)  Programming language  — LAD  Yes  Yes  Yes  Yes  Yes  Yes  Programming language  — LAD  Yes		120
Standards, approvals, certificates  CE mark  CSA approval  Yes  UL approval  Yes  CULus  Yes  FM approval  Yes  RCM (formerly C-TICK)  Yes  EAC (formerly Gost-R)  Use in hazardous areas  ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  min.  min.  max.  60 °C  Configuration  Configuration  Configuration  Configuration  Configuration  Configuration  Configuration  Command set  Nesting levels  Nesting levels  System function blocks (SFB)  Programming language  —LAD  Yes		Ves
CE mark         Yes           CSA approval         Yes           UL approval         Yes           cULus         Yes           FM approval         Yes           RCM (formerly C-TICK)         Yes           KC approval         Yes           EAC (formerly Gost-R)         Yes           Use in hazardous areas		166
CSA approval UL approval Ves  CULus Yes  FM approval Yes  RCM (formerly C-TICK) Yes  EAC (formerly Gost-R) Use in hazardous areas  • ATEX ATEX ATEX II 3G Ex nA IIC T4 GC  Ambient conditions  Ambient temperature during operation • min. • min. • max. 60 °C  Configuration  Configuration software • STEP 7  Programming • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB) Programming language — LAD  Yes		Von
UL approval CULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Use in hazardous areas • ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation • min. • min. • mix. 60 °C  Configuration  Configuration  Configuration software • STEP 7 Yes  Programming • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language — LAD  Yes		
cULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Yes Use in hazardous areas  • ATEX ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min. 0 °C • max. 60 °C  Configuration  Configuration  Configuration software  • STEP 7 Yes  Programming  • Command set see instruction list • Nesting levels 7 • Access to consistent data in process image • System functions (SFC) see instruction list Programming language — LAD  Yes		
FM approval  RCM (formerly C-TICK)  KC approval  Yes  EAC (formerly Gost-R)  Use in hazardous areas  • ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min. • min. • max. 60 °C  Configuration  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • Access to consistent data in process image • System function blocks (SFB)  Programming language  — LAD  Yes		
RCM (formerly C-TICK)  KC approval  EAC (formerly Gost-R)  Use in hazardous areas  • ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min. • max. 60 °C  Configuration  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • Access to consistent data in process image • System function blocks (SFB)  Programming language  — LAD  Yes		
KC approval  EAC (formerly Gost-R)  Use in hazardous areas  • ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min. • max.  60 °C  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB)  Programming language  — LAD  Yes	**	
EAC (formerly Gost-R)  Use in hazardous areas  • ATEX  ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min. • min. • max. 60 °C  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB)  Programming language — LAD  Yes	· · · · · · · · · · · · · · · · · · ·	
Use in hazardous areas  ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  inc. inc. inc. inc. inc. inc. inc. in		
ATEX II 3G Ex nA IIC T4 Gc  Ambient conditions  Ambient temperature during operation  • min. • max. 60 °C  Configuration  Configuration software • STEP 7  Programming • Command set • Nesting levels • Nesting levels • System functions (SFC) • System function blocks (SFB)  Programming language — LAD  ATEX II 3G Ex nA IIC T4 Gc  See instruction list  Frogramming anguage  Yes		1 05
Ambient temperature during operation  • min. • max. • 60 °C  Configuration  Configuration software • STEP 7 Yes  Programming • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language — LAD  Yes		ATEV II 3C Ev pA IIC TA Co
Ambient temperature during operation  • min. • max. 60 °C  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB)  Programming language — LAD  O °C  60 °C  Yes  Yes		ATEA II 30 EX IIA IIO 14 00
<ul> <li>min.</li> <li>max.</li> <li>60 °C</li> </ul> Configuration Configuration software <ul> <li>STEP 7</li> <li>Yes</li> </ul> Programming <ul> <li>Command set</li> <li>Nesting levels</li> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> </ul> Programming language <ul> <li>LAD</li> </ul> Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul> Yes <ul> <li>Yes</li> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> &lt;</ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul>		
<ul> <li>max.</li> <li>Configuration</li> <li>Configuration software</li> <li>STEP 7</li> <li>Programming</li> <li>Command set</li> <li>Nesting levels</li> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language</li> <li>LAD</li> <li>Yes</li> </ul>		0.00
Configuration  Configuration software  STEP 7 Yes  Programming  Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB)  Programming language — LAD  Yes		
Configuration software  • STEP 7  Programming  • Command set  • Nesting levels  • Access to consistent data in process image  • System functions (SFC)  • System function blocks (SFB)  Programming language  — LAD  Yes		60 °C
● STEP 7  Programming  ● Command set  ● Nesting levels  ● Access to consistent data in process image  ● System functions (SFC)  ● System function blocks (SFB)  Programming language  — LAD  Yes		
Programming  Command set See instruction list  Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB)  Programming language — LAD  Yes		
<ul> <li>Command set</li> <li>Nesting levels</li> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language</li> <li>LAD</li> <li>Yes</li> </ul>		Yes
<ul> <li>Nesting levels</li> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language</li> <li>LAD</li> <li>Yes</li> </ul>		
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language</li> <li>LAD</li> <li>Yes</li> </ul>		
<ul> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language</li> <li>LAD</li> <li>Yes</li> </ul>		
◆ System function blocks (SFB) see instruction list  Programming language  — LAD Yes		Yes
Programming language — LAD Yes	<ul> <li>System functions (SFC)</li> </ul>	see instruction list
— LAD Yes	<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list
	Programming language	
EDD. Voc	LAD	Yes
— FDU YES	— LAD	
— STL Yes	— LAD — FBD	Yes

— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Number of simultaneously active SFCs	
— DPSYC_FR	2; SFC 11; per interface
— D_ACT_DP	8; SFC 12; per interface
— RD_REC	8; SFC 59; per interface
— WR_REC	8; SFC 58; per interface
— WR_PARM	8; SFC 55; per interface
— PARM_MOD	1; SFC 57; per interface
— WR_DPARM	2; SFC 56; per interface
— DPNRM_DG	8; SFC 13; per interface
— RDSYSST	8
— DP_TOPOL	1; SFC 103; per interface
Number of simultaneously active SFBs	
— RDREC	8; SFB 52; per interface, but not more than 32 across all external interfaces
— WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Dimensions	
Width	25 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	700 g

3/2/2021

last modified: