SIEMENS

Data sheet 6AG1315-6FF04-2AY0

Figure similar

spare part SIPLUS S7-300 CPU 315F-2DP based on 6ES7315-6FF04-0AB0 with conformal coating, -25…+60 °C, fail-safe module with MPI integrated power supply 24 V DC, work memory 384 KB, 40 mm width, 2nd interface DP master/ slave Micro Memory Card required

General information	
Product type designation	CPU 315F-2 DP
Product function	
● Isochronous mode	Yes
Engineering with	
● Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218 + Distributed Safety
Supply voltage	
Rated value (DC)	24 V; A power supply according to EN 50155 shall be used
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.
Mains buffering	
● Mains/voltage failure stored energy time	5 ms
● Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	850 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	3.5 A
I^2t	1 $A^2 \cdot s$
Power loss	
Power loss, typ.	4.5 W
Memory	
Work memory	
● integrated	384 kbyte
● expandable	No
Load memory	
● Plug-in (MMC)	Yes
● Plug-in (MMC), max.	8 Mbyte
● Data management on MMC (after last programming), min.	10 a
Backup	
● present	Yes; Guaranteed by MMC (maintenance-free)
● without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.05 µs
for word operations, typ.	0.09 µs
for fixed point arithmetic, typ.	0.12 µs
for floating point arithmetic, typ.	0.45 µs

CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
● Number, max.	1 024; Number range: 1 to 16000
● Size, max.	64 kbyte
FB	
● Number, max.	1 024; Number range: 0 to 7999
● Size, max.	64 kbyte
FC	
● Number, max.	1 024; Number range: 0 to 7999
● Size, max.	64 kbyte
OB	
● Number, max.	see instruction list
● Size, max.	64 kbyte
● Number of free cycle OBs	1; OB 1
● Number of time alarm OBs	1; OB 10
● Number of delay alarm OBs	2; OB 20, 21
● Number of cyclic interrupt OBs	4; OB 32, 33, 34, 35
● Number of process alarm OBs	1; OB 40
● Number of DPV1 alarm OBs	3; OB 55, 56, 57
● Number of isochronous mode OBs	1; OB 61
● Number of startup OBs	1; OB 100
● Number of asynchronous error OBs	5; OB 80, 82, 85, 86, 87
● Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
● per priority class	16
● additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
● Number	256
Retentivity	
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	
● present	Yes
● Type	SFB
● Number	Unlimited (limited only by RAM capacity)
S7 times	
● Number	256
Retentivity	
— adjustable	Yes
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
● present	Yes
● Type	SFB
● Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	128 kbyte
Flag	
● Size, max.	2 048 byte
● Retentivity available	Yes; MB 0 to MB 2 047
● Retentivity preset	MB 0 to MB 15
● Number of clock memories	8; 1 memory byte

Data blocks	
● Retentivity adjustable	Yes; via non-retain property on DB
● Retentivity preset	Yes
Local data	
● per priority class, max.	32 kbyte; Max. 2 KB per block
Address area	
I/O address area	
● Inputs	2 048 byte
● Outputs	2 048 byte
of which distributed	
— Inputs	2 048 byte
— Outputs	2 048 byte
Process image	
● Inputs	2 048 byte
● Outputs	2 048 byte
● Inputs, adjustable	2 048 byte
● Outputs, adjustable	2 048 byte
● Inputs, default	384 byte
● Outputs, default	384 byte
Subprocess images	
● Number of subprocess images, max.	1
Digital channels	
● Inputs	16 384
— of which central	1 024
● Outputs	16 384
— of which central	1 024
Analog channels	
● Inputs	1 024
— of which central	256
● Outputs	1 024
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
● integrated	1
● via CP	4
Number of operable FMs and CPs (recommended)	
● FM	8
● CP, PtP	8
● CP, LAN	10
Rack	
● Racks, max.	4
● Modules per rack, max.	8
Time of day	
Clock	
● Hardware clock (real-time)	Yes
● retentive and synchronizable	Yes
● Backup time	6 wk; At 40 °C ambient temperature
● Deviation per day, max.	10 s; Typ.: 2 s
● Behavior of the clock following expiry of backup period	the clock continues at the time of day it had when power was switched off
Operating hours counter	
● Number	1
● Number/Number range	0
● Range of values	0 to 2^31 hours (when using SFC 101)
● Granularity	1 h
● retentive	Yes; Must be restarted at each restart
Clock synchronization	
● supported	Yes
● to MPI, master	Yes
● on MPI, device	Yes

● to DP, master	Yes; With DP slave only slave clock
● on DP, device	Yes
● in AS, master	Yes
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Interfaces	
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Isolated	No
Interface types	
● RS 485	Yes
● Output current of the interface, max.	200 mA
Protocols	
● MPI	Yes
● PROFIBUS DP master	No
● PROFIBUS DP device	No
● Point-to-point connection	No
MPI	
● Transmission rate, max.	187.5 kbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
2. Interface	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
● RS 485	Yes
● Output current of the interface, max.	200 mA
Protocols	
● MPI	No
● PROFIBUS DP master	Yes
● PROFIBUS DP device	Yes
● Point-to-point connection	No
PROFIBUS DP master	
● Transmission rate, max.	12 Mbit/s
● max. number of DP devices	124; Per station
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61
— SYNC/FREEZE	Yes
— activation/deactivation of DP devices	Yes

— max. number of DP devices that can be activated/deactivated at the same time	8
— DPV1	Yes
Address area	
— Inputs, max.	2 048 byte
— Outputs, max.	2 048 byte
User data per DP device	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
2nd interface / PROFIBUS DP device / header	
● GSD file	The latest GSD file is available at: http://www.siemens.com/profibus-gsd
● Transmission rate, max.	12 Mbit/s
● automatic baud rate search	Yes; only with passive interface
● Address area, max.	32
● User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes; Only server, configured on one side
— S7 communication, as client	No
— S7 communication, as server	Yes
— Direct data exchange (slave-to-slave communication)	Yes
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Protocols	
PROFIsafe	Yes
communication functions / header	
PG/OP communication	Yes
Data record routing	Yes
Global data communication	
● supported	Yes
● Number of GD loops, max.	8
● Number of GD packets, max.	8
● Number of GD packets, transmitter, max.	8
● Number of GD packets, receiver, max.	8
● Size of GD packets, max.	22 byte
● Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	
● supported	Yes
● User data per job, max.	76 byte
● User data per job (of which consistent), max.	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
● supported	Yes
● as server	Yes
● as client	Yes; Via CP and loadable FB
● User data per job, max.	180 byte; With PUT/GET
● User data per job (of which consistent), max.	240 byte; as server
S5 compatible communication	
● supported	Yes; via CP and loadable FC
Number of connections	
● overall	16
● usable for PG communication	15
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	15

● usable for OP communication	15
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	15
● usable for S7 basic communication	12
— reserved for S7 basic communication	0
— adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	12
S7 message functions	
Number of login stations for message functions, max.	16; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm_S blocks, max.	300
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	
● Status/control variable	Yes
● Variables	Inputs, outputs, memory bits, DB, times, counters
● Number of variables, max.	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	
● Forcing	Yes
● Forcing, variables	Inputs, outputs
● Number of variables, max.	10
Diagnostic buffer	
● present	Yes
● Number of entries, max.	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
● Number of entries readable in RUN, max.	
— adjustable	Yes; From 10 to 499
— preset	10
Isolation	
Isolation tested with	500 V AC for 1 minute
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes; File E239877
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	
● ATEX	Yes
Railway application	
● EN 50155	Yes; Sections 4, 5 and 12; no further agreements apply; T1, Category 1, Class A/B, EN 50155:2007
Ambient conditions	
Ambient temperature during operation	
● min.	-25 °C; = Tmin
● max.	60 °C; = Tmax; the rated temperature range of -25 ... +55 °C (T1) applies for the use on railway vehicles according to EN50155
Ambient temperature during storage/transportation	
● min.	-40 °C
● max.	70 °C
Altitude during operation relating to sea level	
● Installation altitude above sea level, max.	2 000 m
● Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity	
● With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)

Resistance	
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles	
— to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
— to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
— to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *
Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
configuration / header	
Configuration software	
● STEP 7	Yes; V5.2 SP1 or higher with HW update
configuration / programming / header	
● Command set	see instruction list
● Nesting levels	8
● System functions (SFC)	see instruction list
● System function blocks (SFB)	see instruction list
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
● Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	290 g

Classifications

	Version	Classification
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

Miscellaneous	EG-Konf.	Manufacturer Declaration	Declaration of Conformity	TÜV	UL

EMV		For use in hazardous locations	Test Certificates
KC	RCM	CCC-Ex	TÜV

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