## SIEMENS

## Data sheet

## 6ES7515-2FM01-0AB0



\*\*\* Spare part \*\*\* SIMATIC S7-1500F, CPU 1515F-2 PN, central processing unit with work memory 750 KB for program and 3 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 30 ns bit performance, SIMATIC Memory Card required

Figure similar

Conoral information	
General information	
Product type designation	CPU 1515F-2 PN
HW functional status	FS03
Firmware version	V2.9
Product function	N/ 10.100 / 10.100
I&M data	Yes; I&M0 to I&M3
Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 500 µs (distributed) and 1 ms (central)
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V17 (FW V2.9) / V13 (FW V1.5) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
<ul> <li>Repeat rate, min.</li> </ul>	1/s
Input current	
Current consumption (rated value)	0.8 A
Inrush current, max.	2.4 A; Rated value
l²t	0.02 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	6.2 W
Power loss	
Power loss, typ.	6.3 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	

Indiginal (10 point) point poin	a integrated (for program)	750 kbyta
Lead memory         PLogin (RMTC Memory Card), max.         32 Cityle o           Backup         • maintenance-free         Yes           CPU processing times         •           for bit operstains, typ.         30 fit is           for bit operstains, typ.         48 is           for field operiations, typ.         48 is           for field operations, typ.         48 is           for develop approximation attribute, typ.         48 is           for the develop attribute, typ.         58 is           for the develop attribute, typ.         58 is           for the develop attribute, typ.         50 is bype.           for the develop attribute, the	integrated (for program)	750 kbyte
Plugin (SIMATIC Memory Card), max. 32 Obyte Backup     imaintenance-free     Yes     Yes     Yes     Yes     Yes     Yes     Yes     Yes     Yes     Yyes     Yes     Yes		o mbyte
Backup maintense-free SetU processing times maintense-free SetU processing times For but operations, typ. For factor point arithmetic, typ. For factor point arithmetic, typ. For factor point arithmetic, typ. For but operations, typ. For factor point arithmetic, typ. For but operations, typ. For factor point arithmetic, typ. For but operations, typ. For factor point arithmetic, typ. For Backet (DB, FB, FC, DB) and UDTs FF Number of newnisk (btai) FF Number of point arithmetic, typ. For DBs with absolute addressing, the max, size is 64 KB FF Number of point arithmetic, typ. For DBs with absolute addressing, the max, size is 64 KB FF Number of the cycle OBs Number of face cycle OBs Number of face cycle OBs Number of face cycle OBs Number of order points modes Fig. Number of face cycle OBs Number of order points modes Fig. Number of face cycle OBs Number of order points Fig. Number of face cycle OBs Number of order points Fig. Number of face cycle OBs Number of order points Fig. Number of face cycle OBs Number of order points Fig. Number of face cycle OBs Number of order points Fig. Number of face cycle OBs Number of order points Fig. Number of face cycle OBs Number of order points Fig. Fig. Fig. Fig. Fig. Fig. Fig. Fig.	•	32 Chute
• maintenance-free         Yes           CPU processing times         30 ns           for bid operations, typ.         40 ns           for bid operations, typ.         50 ns           for thid operations		
CPU processing times         Sol is           for bit operations, typ.         30 is           for bit operations, typ.         48 is           for focuting point antimutel, typ.         122 is           CPU-books         9000, Blocks (OB, FE, FC, DB) and UDTs           DB         9000, Blocks (OB, FE, FC, DB) and UDTs           Number of elements (btail)         8.000, Blocks (OB, FE, FC, DB) and UDTs           Number of elements (btail)         8.000, Blocks (OB, FE, FC, DB) and UDTs           FB	•	Yes
for bit operations. typ.     90 ns       for for word operations, typ.     96 ns       for for word operations, typ.     48 ns       for for for for tarithmetic, typ.     48 ns       for for for tarithmetic, typ.     48 ns       for for for for tarithmetic, typ.     90 000; Blocks (OB, FB, FC, DB) and UDTs       DB		
for word operations, typ.     36 ns       for frice point all intermetic, typ.     192 ns       CPUL-blocks     5000; Blocks (OB, FB, FC, DB) and UDTs       Unmber of elements (otal)     8 000; Blocks (OB, FB, FC, DB) and UDTs       DB		30 ns
for floating point arithmetic, typ.     48 ms       for floating point arithmetic, typ.     192 ms       CPU-blocks     8 000. Blocks (OB, FB, FC, DB) and UDTs       DB		
of Data graph and members: typ.     192 ns       CPU-blocks     Number of elements (tota)     8 000; Blocks (CB, FB, FC, DB) and UDTs       DB     1, 60 999; subdivided into: number range that can be used by the user. 1, 50 999; and number range of DBs created via SFC 86: 60 000, 60 999; subdivided into: number range of DBs created via SFC 86: 60 000, 60 999; subdivided into: number range of DBs created via SFC 86: 60 000, 65 535       FB     0, 65 535       • Number range     0, 65 535       • Size, max.     500 kbyte       CB     0, 65 535       • Number range     0, 65 535       • Size, max.     500 kbyte       CB     0, 65 535       • Number of free cycle OBs     100       • Number of free cycle OBs     100       • Number of free cycle OBs     20       • Number of free cycle OBs     20       • Number of free cycle OBs     20       • Number of force cycle interrupt OBs     20       • Number of force cycle interrupt OBs     20       • Number of social and DBs     3       • Number of social and DBs     2       • Number of social and DBs     2       • Number of social and DBs     2       • Number of dispositic alarm OBs     1       • Number of dispositic alarm OBs     2       • Number of dispositic alarm OBs     2       • N		
CPU-blocks         Number of elements (total)       8 000, Blocks (OB, FB, FC, DB) and UDTs         DB       1 60 990, subdivided into: number range of DBs created via SFC 86: 60 000         • Size, max.       3 Mbyte; For DBs with absolute addressing, the max. size is 64 KB         FB       • Number range       0 65 535         • Number range       0 65 535         • Size, max.       500 kbyte;         FC       • Size, max.         • Number range       0 65 535         • Size, max.       500 kbyte         • Number of free cycle OBs       100         • Number of free cycle OBs       100         • Number of offee cycle OBs       20         • Number of offee cycle OBs       20         • Number of process ataim OBs       20         • Number of process ataim OBs       20         • Number of offee cycle OBs       100         • Number of of sochronous and OBs       2         • Number of sochronous more OBs       2         • Number of sochronous error OBs       1         • Number of dagnostic alarm OBs       2         • Number of dagnostic alarm OBs       1         • Number of dagnostic alarm OBs       2         • Number of dagnostic alarm OBs       2		
Number of elements (total)         8 000; Blocks (OB, FB, FC, DB) and UDTs           0B         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .         .<		102 110
DB       1 60 999; subdivided into: number range that can be used by the user 1 59 998, and number range of DBs created via SFC 86: 60 000         60 999       3. Mbyte; For DBs with absolute addressing, the max. size is 64 KB         FB       0 65 535         Number range       0 65 535         Size, max.       500 kbyte         FC       0 65 535         Number range       0 65 535         Size, max.       500 kbyte         OB       0 65 535         Number of time sterm OBs       20         Number of time sterm OBs       20         Number of cycle interrupt OBs       20         Number of ofdeay atam OBs       20         Number of ofdeay nam OBs       20         Number of ofdeay nam OBs       20         Number of ofschronous mode OBs       2         Number of starbu OBs       30         Number of starbu OBs       100         Number of dagnotic nam OBs       100         Number of dagnotic nam OBs       2         Number of dagnotic nam OBs       100         Number of starbu OBs       100         Number of dagnotic nam OBs       2         Number       2 048		8 000: Blocks (OR, ER, EC, DR) and URTs
• Number range     160.999: subdivided into: number range that be used by the user 150.999; and number range of DBs created via SFC 86: 60.000,60.999       • Size, max.     3 Mbyte; For DBs with absolute addressing, the max. size is 64 KB       FB     065.535       • Size, max.     500 kbyte       FC		0 000, BIOCKS (OB, FB, FC, DB) and ODTS
user: 1 59 999, and number range of DBs created via SFC 86: 80 000       FB       • Number range     0 65 535       • Stze, max.     500 kbyte       FC     FC       • Number range     0 65 535       • Stze, max.     500 kbyte       FB     500 kbyte       FC     500 kbyte       FC     500 kbyte       FC     500 kbyte       • Number range     0 65 535       • Stze, max.     500 kbyte       • Number of free cycle OBs     100       • Number of free cycle OBs     20       • Number of delay atam OBs     20       • Number of process atam OBs     20       • Number of process atam OBs     20       • Number of DPV1 atam OBs     20       • Number of bechnology sprothenous atam OBs     2       • Number of bechnology sprothenous atam OBs     2       • Number of starting OBs     100       • Number of dagnothenous error OBs     4       • Number of dagnothenous error OBs     24; Up to 8 possible for F-blocks       Counters. funces and their retentivity     -       - adjustable     Yes       IEC counter     -       • Number     Any (only limited by the main memory)       Retentivity     -       - adjustable     Yes <td></td> <td>1 60 000; subdivided into: number range that can be used by the</td>		1 60 000; subdivided into: number range that can be used by the
60 99 Size, max		
FB       Number range       0 65 535         • Size, max.       500 Kbyte         FC       Number range       0 65 535         • Number of range       0 65 535         • Size, max.       500 kbyte         OB       500 kbyte         • Number of time alarm OBs       20         • Number of diagnation OBs       20         • Number of straine OBS       20         • Number of opcie inferupt OBs       20         • Number of process alarm OBs       50         • Number of lischronous mode OBs       2         • Number of lischronous mode OBs       2         • Number of startup OBs       100         • Number of startup OBs       1         • Number of dagnosticalarm OBs       1         • Number of dagnosticalarm OBs       1         • Number of dagnosticalarm OBs       1         • Number       2 048         Retentivity       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         • Number       Any (only limit		
• Number range     0 65 535       • Size, max.     500 kbyte       FC     65 535       • Number range     0 65 535       • Size, max.     500 kbyte       OB     65 535       • Size, max.     500 kbyte       OB     65 535       • Number of tree cycle OBs     100       • Number of free cycle OBs     100       • Number of delay alarm OBs     20       • Number of cyclic interrupt OBs     20       • Number of port of DPV 1 alarm OBs     3       • Number of startup OBs     3       • Number of startup OBs     2       • Number of startup OBs     100       • Number of startup OBs     2       • Number of startup OBs     100       • Number of startup OBs     100       • Number of startup OBs     2       • Number     2 048       Retentivity	• Size, max.	3 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
size, max.     500 kbyte       FC <ul> <li>Number range</li> <li>Size, max.</li> <li>Size, max.</li> <li>Size, max.</li> <li>Size, max.</li> <li>Solo kbyte</li> <li>Size, max.</li> <li>Solo kbyte</li> <li>Size, max.</li> <li>Solo kbyte</li> <li>Size, max.</li> <li>Solo kbyte</li> <li>Solo kbyte</li></ul>	FB	
FC     • Size, max.     535       • Size, max.     500 kbyte       OB     • Size, max.       • Size, max.     500 kbyte       • Number of free cycle OBs     100       • Number of free alarm OBs     20       • Number of cycle interrupt OBs     20       • Number of yocks alarm OBs     20       • Number of yocks alarm OBs     20       • Number of process alarm OBs     20       • Number of process alarm OBs     3       • Number of socknonous mode OBs     3       • Number of technology synchronous alarm OBs     2       • Number of daynaphronous alarm OBs     2       • Number of synchronous error OBs     2       • Number     2048       Retentivity     2048       — adjustable     Yes       IEC counter     Yes       • Number     2048       Retentivity     - adjustable       — adjustable     Yes       IEC Imer     - adjustable       • Number     Any (only limited by the main memory)       Retentivity     - adjustable       - adjusta	Number range	0 65 535
• Number range     0 65 535       • Size, max.     500 Kbyte       • OB     500 kbyte       • Size, max.     500 kbyte       • Number of free cycle OBs     100       • Number of firme alarn OBs     20       • Number of solds alarn OBs     20       • Number of process alarn OBs     20       • Number of process alarn OBs     500       • Number of process alarn OBs     3       • Number of solds noron sonde OBs     2       • Number of startup OBs     100       • Number of startup OBs     1       • Number of asynchronous error OBs     4       • Number of asynchronous error OBs     1       • Number     2 048       • Number     2 048       • Number     2 048       • Number     - adjustable       • Number     2 048       •		500 kbyte
• Size, max.     500 kbyte       • Size, max.     500 kbyte       • Number of recycle OBs     100       • Number of time alarm OBs     20       • Number of delay alarm OBs     20       • Number of delay alarm OBs     20       • Number of process alarm OBs     500       • Number of lochnology synchronous alarm OBs     2       • Number of synchronous error OBs     2       • Number of asynchronous error OBs     2       • Number     2 Up to 8 possible for F-blocks       Counters.     1       • Particity     2 Up to 8       — adjustable     Yes       Strings     2 Up to 8       • Number     2 Up to 8       • Number     2 Up to 8       • Number     2 Up to 8       • Alumber     Yes       • Alumber     Yes       Strings     1       • Number     Any (o		
OB     500 kbyte       • Number of free cycle OBs     100       • Number of free cycle OBs     100       • Number of delay alarm OBs     20       • Number of process alarm OBs     20, With minimum OB 3x cycle of 500 µs       • Number of process alarm OBs     50       • Number of process alarm OBs     2       • Number of stockport     72       • Number     2048       Retentivity     72       - adjustable     Yes       IEC counter     74       • Number     2048       Retentivity     74       - adjustable     Yes       S7 times     2048       • Number     2048       Retentivity     74       - adjustable	5	
<ul> <li>Size, max.</li> <li>Size, max.</li> <li>Number of three adam OBs</li> <li>Number of the adam OBs</li> <li>Number of delay alarm OBs</li> <li>Number of process alarm OBs</li> <li>Number of process alarm OBs</li> <li>Number of spectromous adarm OBs</li> <li>Number of the adaption of asynchronous alarm OBs</li> <li>Number of asynchronous arenro OBs</li> <li>Number of spectromous and OBs</li> <li>Number of adaption of asynchronous arenro OBs</li> <li>Number of spectromous arenro OBs</li> <li>Number</li> <li>Auruber</li> <li>Value</li> <li>Val</li></ul>		500 kbyte
<ul> <li>Number of free cycle OBs</li> <li>Number of fine alarm OBs</li> <li>20</li> <li>Number of delay alam OBs</li> <li>20</li> <li>Number of cyclic interrupt OBs</li> <li>20</li> <li>Number of provision of provess alarm OBs</li> <li>Number of DPV1 alarm OBs</li> <li>Number of IDPV1 alarm OBs</li> <li>Number of schronous mode OBs</li> <li>Sumber of startup OBs</li> <li>Number of diagnostic alarm OBs</li> <li>Number</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Number</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Number</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Number</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Number</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Number</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Number</li> <li>Algustable</li> <li>Yes</li> <li>Socuriter</li> <li>Number</li> <li>Any (only limited by the main memory)</li> <li>Retentivity</li> <li>Any (only limited by the main memory)</li> <li>Retentivity</li> <li>Any (only limited by the main m</li></ul>		
• Number of time alarm OBs20• Number of time alarm OBs20• Number of cyclic interrupt OBs20, With minimum OB 3x cycle of 500 µs• Number of process alarm OBs3• Number of process alarm OBs3• Number of tiscchronous mode OBs2• Number of textnolous mode OBs2• Number of stactnonous entro OBs100• Number of asynchronous alarm OBs2• Number of synchronous entro OBs4• Number of asynchronous entro OBs2• Number of dagnostic alarm OBs1• Number of dagnostic alarm OBs1• Number of asynchronous entro OBs2• Number2 048Retentivity adjustableYesIEC timer-• Number2 048Retentivity adjustableYesIEC timer-• NumberAny (only limited by the main memory)Retentivity adjustableYesIEC timer-• Number-• Number-• AugustableYes<		
• Number of delay alam OBs     20       • Number of cyclic interrupt OBs     20; With minimum OB 3x cycle of 500 µs       • Number of process alam OBs     3       • Number of DPV1 alam OBs     3       • Number of DPV1 alam OBs     2       • Number of stochronous mode OBs     2       • Number of stochronous alarm OBs     1       • Number of stochronous error OBs     4       • Number of stochronous error OBs     2       • Number of stochronous error OBs     1       • Number of diagnostic alarm OBs     1       • Number of stochronous error OBs     2       • Number of stochronous error OBs     2       • Number of stochronous error OBs     2       • Number of stochronous error OBs     1       • Number of stochronous error OBs     2       • Number of diagnostic alarm OBs     1       • Number     2 (4; Up to 8 possible for F-blocks       Counters, timers and their retentivity     -       - adjustable     Yes       IEC counter     -       • Number     2 048       Retentivity     -       - adjustable     Yes       S7 times     -       • Number     Any (only limited by the main memory)       Retentivity     -       - adjustable     Yes       IEC timer </td <td>-</td> <td></td>	-	
<ul> <li>Number of cyclic interrupt OBs</li> <li>20; With minimum OB 3x cycle of 500 µs</li> <li>Number of DPV1 alam OBs</li> <li>Sumber of DPV1 alam OBs</li> <li>Number of Startup OBs</li> <li>Number of asynchronous atom OBs</li> <li>Number of startup OBs</li> <li>Number</li> <li>adjustable</li> <li>Yes</li> <li>IEC counter</li> <li>Number</li> <li>Any (only limited by the main memory)</li> <li>Retentivity</li> <li>- adjustable</li> <li>Yes</li> <li>IEC timer</li> <li>- adjustable</li> <li>Yes</li> <li>IEC timer</li> <li>- adjustable</li> <li>Yes</li> <li>IEC timer</li> <li>- adjustable</li> <li>Yes</li> <li>Data areas and their retentivity</li> <li>S12 kbyte; In total; available retentive memory for bit memories, timers, counters, flags), max.</li> <li>S12 kbyte; When using PS 6 0W 24/48/60 V DC HF</li> <li>Flag</li> </ul>		
• Number of process alarm OBs     50       • Number of sochronous mode OBs     3       • Number of startup OBs     2       • Number of startup OBs     100       • Number of startup OBs     100       • Number of startup OBs     1       • Number of startup OBs     2       • Number of startup OBs     1       • Number of startup OBs     2       • Number of startup OBs     2       • Number of startup OBs     1       • Per priority class     24; Up to 8 possible for F-blocks       Counters, timers and their retentivity     2       S7 counter     2       • Number     Any (only limited by the main memory)       Retentivity     -       - adjustable     Yes       S7 times     -       • Number     2       • Number     2       • Number     2       • Number     Any (only limited by the main memory)       Retentivity     -       - adjustable     Yes       IEC timer     Any (only limited by the main memory)       Retentivity     -       - adjustable     Yes       IEC timer     Any (	-	
• Number of DPV1 alarm OBs       3         • Number of DPV1 alarm OBs       2         • Number of technology synchronous alarm OBs       1         • Number of asynchronous error OBs       4         • Number of asynchronous error OBs       2         • Number of asynchronous error OBs       1         • Number of diagnostic alarm OBs       1         • Number of diagnostic alarm OBs       1         • Number of technology synchronous error OBs       2         • Number of diagnostic alarm OBs       1         • Per priority class       24; Up to 8 possible for F-blocks         Counters, timers and their retentivity       57 counter         • Number       2 048         Retentivity       -         - adjustable       Yes         IEC counter       -         • Number       Any (only limited by the main memory)         Retentivity       -         - adjustable       Yes         S7 times       -         - adjustable       Yes         IEC timer       -         - adjustable       Yes         IEC timer       -         - adjustable       Yes         IEC timer       -         - adjustable       Yes<		
• Number of isochronous mode OBs       2         • Number of technology synchronous alarm OBs       2         • Number of startup OBs       100         • Number of synchronous error OBs       4         • Number of diagnostic alarm OBs       1         • Nesting depth       1         • per priority class       24; Up to 8 possible for F-blocks         Counters, timers and their retentivity       57 counter         • Number       2 048         Retentivity       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         S7 times       - adjustable         • Number       2 048         Retentivity       - adjustable         • Number       2 048         Retentivity       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         IEC timer       Any (only limited by the main memory)         Retentivity       - adjustable         Yes       - adjustable <t< td=""><td></td><td>50</td></t<>		50
• Number of technology synchronous alarm OBs       2         • Number of startup OBs       100         • Number of startup OBs       4         • Number of synchronous error OBs       2         • Number of diagnostic alarm OBs       1         Nesting depth       24; Up to 8 possible for F-blocks         • per priority class       24; Up to 8 possible for F-blocks         Counters, timers and their retentivity       57 counter         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC counter       - adjustable         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         S7 times       - adjustable         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         S7 times       - adjustable         - adjustable       Yes         IEC timer       - adjustable         - adjustable       Yes         IEC timer       - adjustable         - adjustable       Yes         Data areas and their retentivity       - adjustable         - adjustable       Yes </td <td><ul> <li>Number of DPV1 alarm OBs</li> </ul></td> <td></td>	<ul> <li>Number of DPV1 alarm OBs</li> </ul>	
• Number of startup OBs       100         • Number of asynchronous error OBs       4         • Number of diagnostic alarm OBs       2         • Number of diagnostic alarm OBs       1         Nesting depth       24; Up to 8 possible for F-blocks         Counters, timers and their retentivity       2         S7 counter       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC counter       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         S7 times       - adjustable         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         S7 times       - adjustable         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC timer       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         Data areas and their retentivity       - adjustable         - adjustable		
• Number of asynchronous error OBs       4         • Number of diagnostic alarm OBs       1         • Nesting depth       1         • per priority class       24; Up to 8 possible for F-blocks         Counters, timers and their retentivity       24; Up to 8 possible for F-blocks         S7 counter       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC counter       4 (add the for		2
• Number of synchronous error OBs       2         • Number of diagnostic alarm OBs       1         Nesting depth       • per priority class       24; Up to 8 possible for F-blocks         Counters, timers and their retentivity       57 counter       2 048         Retentivity       – adjustable       Yes         IEC counter       Any (only limited by the main memory)         Retentivity       – adjustable         • Number       Any (only limited by the main memory)         Retentivity       – adjustable         • Number       2 048         Retentivity       – adjustable         • Number       2 048         Retentivity       – adjustable         - adjustable       Yes         IEC timer       Ves         • Number       Any (only limited by the main memory)         Retentivity       – adjustable         - adjustable       Yes         IEC timer       Ves         • Number       Any (only limited by the main memory)         Retentivity       – adjustable         - adjustable       Yes         Data areas and their retentivity       – adjustable         Retentivity       – adjustable         S12 kbyte; In total; available retentive memory	•	100
Number of diagnostic alarm OBs     1  Nesting depth     e per priority class     24; Up to 8 possible for F-blocks  Counters, timers and their retentivity  S7 counter  Number     2048  Retentivity	-	
Nesting depth         • per priority class       24; Up to 8 possible for F-blocks         Counters, timers and their retentivity         S7 counter         • Number       2 048         Retentivity         adjustable       Yes         IEC counter         • Number       Any (only limited by the main memory)         Retentivity         adjustable       Yes         S7 times       2 048         Retentivity         adjustable       Yes         S7 times       2 048         Retentivity	•	
• per priority class     24; Up to 8 possible for F-blocks  Counters, timers and their retentivity  S7 counter  • Number 2 048 Retentivityadjustable Yes IEC counter  • Number Any (only limited by the main memory) Retentivityadjustable Yes S7 times  • Number 2 048 Retentivityadjustable Yes IEC timer • Number Any (only limited by the main memory) Retentivityadjustable Yes IEC timer • Number Any (only limited by the main memory) Retentivityadjustable Yes IEC timer • Number S7 times 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes); 472 KB 3 Mbyte; When using PS 6 0W 24/48/60 V DC HF		1
Counters, timers and their retentivity         S7 counter         • Number       2 048         Retentivity         adjustable       Yes         IEC counter         • Number       Any (only limited by the main memory)         Retentivity         adjustable       Yes         S7 times         • Number       2 048         Retentivity       Yes         adjustable       Yes         S7 times       2 048         Retentivity       adjustable         Yes       Yes         IEC timer       2 048         Retentivity       adjustable         adjustable       Yes         IEC timer       Any (only limited by the main memory)         Retentivity       adjustable         adjustable       Yes         Data areas and their retentivity       adjustable         adjustable       Yes         Data areas (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Statended retentive data area (incl. timers, counters, flags), max.       3 Mbyte; When using PS 6 0W 24/48/60 V DC HF         Flag		
S7 counter       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC counter       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         S7 times       2 048         Retentivity       - adjustable         - adjustable       Yes         S7 times       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC timer       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         IEC timer       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         Data areas and their retentivity       - adjustable         Retentive data area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Stander tetentive data area (incl. timers, counters, flags), max.       512 kbyte; When using PS 6 0W 24/48/60 V DC HF <t< td=""><td><ul> <li>per priority class</li> </ul></td><td>24; Up to 8 possible for F-blocks</td></t<>	<ul> <li>per priority class</li> </ul>	24; Up to 8 possible for F-blocks
• Number       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC counter       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         S7 times       2 048         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC timer       Yes         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         IEC timer       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         Data areas and their retentivity       Yes         Retentivite data area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Statended retentive data area (incl. timers, counters, flags), max.       512 kbyte; When using PS 6 0W 24/48/60 V DC HF         Flag       Image: Pi additional pi add	Counters, timers and their retentivity	
Retentivity       Yes         IEC counter       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         S7 times       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC timer       Yes         IEC timer       Any (only limited by the main memory)         Retentivity       - adjustable         Yes       Yes         IEC timer       Any (only limited by the main memory)         Retentivity       - adjustable         Yes       Yes         IEC timer       Any (only limited by the main memory)         Retentivity       - adjustable         Yes       Yes         Data areas and their retentivity       Yes         Retentive data area (incl. timers, counters, flags), max.       S12 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Statended retentive data area (incl. timers, counters, flags), max.       3 Mbyte; When using PS 6 0W 24/48/60 V DC HF         Flag       Yes       Yes	S7 counter	
	Number	2 048
IEC counter         • Number       Any (only limited by the main memory)         Retentivity         adjustable       Yes         \$7 times         • Number       2 048         Retentivity         adjustable       Yes         IEC timer         • Number       Any (only limited by the main memory)         Retentivity         adjustable       Yes         IEC timer         • Number       Any (only limited by the main memory)         Retentivity       adjustable         adjustable       Yes         Data areas and their retentivity       Yes         Data areas and their retentivity       512 kbyte; In total; available retentive memory for bit memories, timers, counters, flags), max.         Extended retentive data area (incl. timers, counters, flags), max.       512 kbyte; When using PS 6 0W 24/48/60 V DC HF         max.       Flag	Retentivity	
• Number       Any (only limited by the main memory)         Retentivity       - adjustable         • Number       2 048         Retentivity       - adjustable         • Number       2 048         Retentivity       - adjustable         - adjustable       Yes         IEC timer       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         IEC timer       - adjustable         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         Data areas and their retentivity       - adjustable         Retentive data area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Extended retentive data area (incl. timers, counters, flags), max.       3 Mbyte; When using PS 6 0W 24/48/60 V DC HF         Flag	— adjustable	Yes
Retentivity       Yes         adjustable       Yes         S7 times       2 048         Retentivity       adjustable         adjustable       Yes         IEC timer       adjustable         • Number       Any (only limited by the main memory)         Retentivity       adjustable         adjustable       Yes         Data areas and their retentivity       adjustable         Retentive data area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Extended retentive data area (incl. timers, counters, flags), max.       512 kbyte; When using PS 6 0W 24/48/60 V DC HF         Flag       Flag	IEC counter	
		Any (only limited by the main memory)
S7 times       2 048         Retentivity		
<ul> <li>Number</li> <li>2 048</li> <li>Retentivity</li> <li>adjustable</li> <li>Yes</li> <li>IEC timer</li> <li>Number</li> <li>Any (only limited by the main memory)</li> <li>Retentivity</li> <li>adjustable</li> <li>Yes</li> <li>Data areas and their retentivity</li> <li>Retentive data area (incl. timers, counters, flags), max.</li> <li>Extended retentive data area (incl. timers, counters, flags), max.</li> <li>Flag</li> </ul>		Yes
Retentivity       Yes         IEC timer       Any (only limited by the main memory)         • Number       Any (only limited by the main memory)         Retentivity       - adjustable         - adjustable       Yes         Data areas and their retentivity       Yes         Retentive data area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Extended retentive data area (incl. timers, counters, flags), max.       3 Mbyte; When using PS 6 0W 24/48/60 V DC HF         Flag       Flag		
— adjustableYesIEC timerAny (only limited by the main memory)• NumberAny (only limited by the main memory)Retentivity—— adjustableYesData areas and their retentivityRetentive data area (incl. timers, counters, flags), max.Extended retentive data area (incl. timers, counters, flags), max.512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KBExtended retentive data area (incl. timers, counters, flags), max.3 Mbyte; When using PS 6 0W 24/48/60 V DC HFFlag		2 048
IEC timer       Any (only limited by the main memory)         Retentivity       — adjustable         — adjustable       Yes         Data areas and their retentivity		
• Number       Any (only limited by the main memory)         Retentivity       — adjustable         — adjustable       Yes         Data areas and their retentivity       Retentive data area (incl. timers, counters, flags), max.         Setentive data area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Extended retentive data area (incl. timers, counters, flags), max.       3 Mbyte; When using PS 6 0W 24/48/60 V DC HF         Flag       Flag		Yes
Retentivity       Yes         Data areas and their retentivity       Pata area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Extended retentive data area (incl. timers, counters, flags), max.       3 Mbyte; When using PS 6 0W 24/48/60 V DC HF         Flag		
— adjustable       Yes         Data areas and their retentivity       Retentive data area (incl. timers, counters, flags), max.       512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB         Extended retentive data area (incl. timers, counters, flags), max.       3 Mbyte; When using PS 6 0W 24/48/60 V DC HF         Flag		Any (only limited by the main memory)
Data areas and their retentivity         Retentive data area (incl. timers, counters, flags), max.         Extended retentive data area (incl. timers, counters, flags), max.         Extended retentive data area (incl. timers, counters, flags), max.         Flag	-	Y.
Retentive data area (incl. timers, counters, flags), max.512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KBExtended retentive data area (incl. timers, counters, flags), max.3 Mbyte; When using PS 6 0W 24/48/60 V DC HFFlag		Yes
Extended retentive data area (incl. timers, counters, flags), max.counters, DBs, and technology data (axes): 472 KB 3 Mbyte; When using PS 6 0W 24/48/60 V DC HFFlag	Data areas and their retentivity	
Extended retentive data area (incl. timers, counters, flags), max. Flag	Retentive data area (incl. timers, counters, flags), max.	
max. Flag	<b>_</b>	
Flag		3 Mbyte; When using PS 6 0W 24/48/60 V DC HF
♥ 0126, 11dA.		16 kbyte
	• SILE, IIIAA.	

Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
Retentivity adjustable	Yes
Retentivity preset	No
Local data	
<ul> <li>per priority class, max.</li> </ul>	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	8 192; max. number of modules / submodules
I/O address area	
Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images • Number of subprocess images, max.	32
Hardware configuration	
	64: A distributed 1/0 proton is appropriate and and any but he internation
Number of distributed IO systems	64; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
• integrated	
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Rack	
Modules per rack, max.	32; CPU + 31 modules
Number of lines, max.	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
• Туре	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
<ul> <li>Deviation per day, max.</li> </ul>	10 s; Typ.: 2 s
Operating hours counter	
Number     Clock sumshanization	16
Clock synchronization	Vac
<ul><li>supported</li><li>in AS, master</li></ul>	Yes
<ul> <li>in AS, master</li> <li>in AS, slave</li> </ul>	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	2
1. Interface	
Interface types	
RJ 45 (Ethernet)	Yes; X1
Number of ports	2
• integrated switch	Yes
Protocols	
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
<ul> <li>SIMATIC communication</li> </ul>	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
<ul> <li>Media redundancy</li> </ul>	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0

PROFINET IO Controller	
Services	
— PG/OP communication	Yes
<ul> <li>— Isochronous mode</li> </ul>	Yes
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— IRT	Yes
— PROFlenergy	Yes; per user program
— Prioritized startup	Yes; Max. 32 PROFINET devices
- Number of connectable IO Devices, max.	256; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<ul> <li>— Of which IO devices with IRT, max.</li> </ul>	64
<ul> <li>— Number of connectable IO Devices for RT,</li> </ul>	256
max.	
— of which in line, max.	256
<ul> <li>— Number of IO Devices that can be</li> </ul>	8; in total across all interfaces
simultaneously activated/deactivated, max.	
<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the
	quantity of configured user data
Update time for IRT	
— for send cycle of 250 µs	250 μs to 4 ms; Note: In the case of IRT with isochronous mode, the
for condicide of 500 up	minimum update time of 500 $\mu$ s of the isochronous OB is decisive
— for send cycle of 500 μs	500 µs to 8 ms
— for send cycle of 1 ms	1 ms to 16 ms
- for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
<ul> <li>With IRT and parameterization of "odd" send cycles</li> </ul>	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 875 µs)
Update time for RT	µs 3 673 µs)
— for send cycle of 250 μs	250 µs to 128 ms
— for send cycle of 230 μs	500 µs to 256 ms
	1 ms to 512 ms
— for send cycle of 1 ms	2 ms to 512 ms
— for send cycle of 2 ms	
— for send cycle of 4 ms     PROFINET IO Device	4 ms to 512 ms
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	Yes
	Yes; per user program
— PROFlenergy — Shared device	Yes
<ul> <li>— Shared device</li> <li>— Number of IO Controllers with shared device.</li> </ul>	4
max.	4
<ul> <li>— activation/deactivation of I-devices</li> </ul>	Yes; per user program
— Asset management record	Yes; per user program
2. Interface	
Interface types	Voc: V2
RJ 45 (Ethernet)	Yes; X2 1
Number of ports     integrated switch	
integrated switch Protocols	No
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET TO Controller     PROFINET TO Device	Yes
SIMATIC communication	Yes
	Yes; Optionally also encrypted
<ul> <li>Open IE communication</li> <li>Web server</li> </ul>	Yes
Media redundancy	Yes
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— Direct data exchange	No
— Direct data exchange — IRT	No
— 11/1	NU

— PROFlenergy	Yes; per user program
Prioritized startup	No
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	32; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<ul> <li>— Number of connectable IO Devices for RT,</li> </ul>	32
max.	
— of which in line, max.	32
<ul> <li>— Number of IO Devices that can be</li> </ul>	8; in total across all interfaces
simultaneously activated/deactivated, max.	
<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the
	quantity of configured user data
Update time for RT	1
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— PG/OP communication	Yes
<ul> <li>— Isochronous mode</li> </ul>	No
— IRT	No
— PROFlenergy	Yes; per user program
— Prioritized startup	No
— Shared device	Yes
— Number of IO Controllers with shared device,	4
max. — activation/deactivation of I-devices	Yes; per user program
Asset management record	Yes; per user program
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
Autonegotiation	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes
Protocols	
Protocols PROFIsafe	Yes: V2 4 / V2 6
PROFIsafe	Yes; V2.4 / V2.6
PROFIsafe Number of connections	
PROFIsafe	Yes; V2.4 / V2.6 192; via integrated interfaces of the CPU and connected CPs / CMs 10
PROFIsafe Number of connections • Number of connections, max.	192; via integrated interfaces of the CPU and connected CPs / CMs
PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web	192; via integrated interfaces of the CPU and connected CPs / CMs 10
PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108
PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108
PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths Redundancy mode	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16
PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths Redundancy mode • H-Sync forwarding	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16
PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths Redundancy mode • H-Sync forwarding Media redundancy	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP
PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths Redundancy mode • H-Sync forwarding Media redundancy — Media redundancy — MRP	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP interconnection, supported	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP interconnection, supported         — MRPD	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP interconnection, supported         — MRPD         — Switchover time on line break, typ.	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP         — MRP         — MRPD         — Switchover time on line break, typ.         — Number of stations in the ring, max.	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         - Media redundancy         - MRP         - MRP         - MRPD         - Switchover time on line break, typ.         - Number of stations in the ring, max.         SIMATIC communication	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP         — MRP         — MRPD         — Switchover time on line break, typ.         — Number of stations in the ring, max.	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         - Media redundancy         - MRP         - MRP         - MRP         - Switchover time on line break, typ.         - Number of stations in the ring, max.         SIMATIC communication	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP         — MRP         — Switchover time on line break, typ.         — Number of stations in the ring, max.         SIMATIC communication         • S7 routing         • S7 communication, as server	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP         — Switchover time on line break, typ.         — Number of stations in the ring, max.         SIMATIC communication         • S7 routing         • S7 communication, as server         • S7 communication, as client	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes Yes
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         — Media redundancy         — MRP         — MRP         — MRP         — Switchover time on line break, typ.         — Number of stations in the ring, max.         SIMATIC communication         • S7 communication, as server         • S7 communication, as client         • User data per job, max.	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes Yes
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         - Media redundancy         - MRP         - MRP         - MRPD         - Switchover time on line break, typ.         - Number of stations in the ring, max.         SIMATIC communication         • S7 communication, as server         • S7 communication, as client         • User data per job, max.         Open IE communication	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes Yes Yes See online help (S7 communication, user data size)
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         - MRP         - MRP         - MRP         - MRPD         - Switchover time on line break, typ.         - Number of stations in the ring, max.         SIMATIC communication         • S7 routing         • S7 communication, as server         • S7 communication, as client         • User data per job, max.         Open IE communication         • TCP/IP         - Data length, max.         - several passive connections per port,	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes Only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes Yes Yes Yes See online help (S7 communication, user data size)
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         - Media redundancy         - MRP         - MRP         - MRP         - Switchover time on line break, typ.         - Number of stations in the ring, max.         SIMATIC communication         • S7 routing         • S7 communication, as server         • S7 communication, as client         • User data per job, max.         Open IE communication         • TCP/IP         - Data length, max.         - several passive connections per port, supported	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes Yes See online help (S7 communication, user data size) Yes 64 kbyte Yes
PROFIsafe         Number of connections         • Number of connections, max.         • Number of connections reserved for ES/HMI/web         • Number of connections via integrated interfaces         • Number of S7 routing paths         Redundancy mode         • H-Sync forwarding         Media redundancy         - Media redundancy         - MRP         - MRP         - MRPD         - Switchover time on line break, typ.         - Number of stations in the ring, max.         SIMATIC communication         • S7 routing         • S7 communication, as server         • S7 communication, as client         • User data per job, max.         Open IE communication         • TCP/IP         - Data length, max.         - several passive connections per port, supported         • ISO-on-TCP (RFC1006)	192; via integrated interfaces of the CPU and connected CPs / CMs 10 108 16 Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes Yes Yes See online help (S7 communication, user data size) Yes 64 kbyte Yes Yes
PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy — Media redundancy — MRP MRP interconnection, supported — MRPD — Switchover time on line break, typ. — Number of stations in the ring, max. SIMATIC communication S7 routing S7 communication, as server S7 communication, as client User data per job, max. Open IE communication TCP/IP — Data length, max. — several passive connections per port, supported ISO-on-TCP (RFC1006) — Data length, max.	192; via integrated interfaces of the CPU and connected CPs / CMs         10         108         16         Yes         only via 1st interface (X1)         Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP         Manager; MRP Client         Yes; as MRP ring node according to IEC 62439-2 Edition 3.0         Yes; Requirement: IRT         200 ms; For MRP, bumpless for MRPD         50         Yes         Yes         See online help (S7 communication, user data size)         Yes         Yes         Yes         64 kbyte         Yes         64 kbyte
PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy — Media redundancy — MRP MRP interconnection, supported — MRPD — Switchover time on line break, typ. — Number of stations in the ring, max. SIMATIC communication S7 routing S7 communication, as server S7 communication, as client User data per job, max. Open IE communication ISO-on-TCP (RFC1006) — Data length, max. UDP	192; via integrated interfaces of the CPU and connected CPs / CMs         108         16         Yes         only via 1st interface (X1)         Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP         Manager; MRP Client         Yes; as MRP ring node according to IEC 62439-2 Edition 3.0         Yes; Requirement: IRT         200 ms; For MRP, bumpless for MRPD         50         Yes         Yes         Yes         See online help (S7 communication, user data size)         Yes         Yes         64 kbyte         Yes         64 kbyte         Yes         See online help (S7 communication, user data size)
PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy — Media redundancy — MRP MRP interconnection, supported — MRPD — Switchover time on line break, typ. — Number of stations in the ring, max. SIMATIC communication S7 routing S7 communication, as server S7 communication, as client User data per job, max. — several passive connections per port, supported ISO-on-TCP (RFC1006) — Data length, max.	192; via integrated interfaces of the CPU and connected CPs / CMs         10         108         16         Yes         only via 1st interface (X1)         Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP         Manager; MRP Client         Yes; as MRP ring node according to IEC 62439-2 Edition 3.0         Yes; Requirement: IRT         200 ms; For MRP, bumpless for MRPD         50         Yes         Yes         See online help (S7 communication, user data size)         Yes         Yes         Yes         64 kbyte         Yes         64 kbyte

	Vee
	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
• Encryption	Yes; Optional
Web server • HTTP	Ves: Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	Yes; Standard and user pages
Runtime license required	Yes
OPC UA Client	Yes
- Application authentication	Yes
- Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
	Basic256Sha256
<ul> <li>User authentication</li> </ul>	"anonymous" or by user name & password
<ul> <li>Number of connections, max.</li> </ul>	10
<ul> <li>Number of nodes of the client interfaces, recommended max.</li> </ul>	2 000
<ul> <li>— Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/C</li> </ul>	300
max.	
<ul> <li>— Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> </ul>	20
<ul> <li>— Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> </ul>	100
- Number of simultaneous calls of the client	1
instructions for session management, per connection, max.	
<ul> <li>— Number of simultaneous calls of the client instructions for data access, per connection, max.</li> </ul>	5
— Number of registerable nodes, max.	5 000
<ul> <li>— Number of registerable method calls of OPC_UA_MethodCall, max.</li> </ul>	100
— Number of inputs/outputs when calling OPC_UA_MethodCall, max.	20
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
- Application authentication	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
<ul> <li>— Number of sessions, max.</li> </ul>	48
<ul> <li>Number of accessible variables, max.</li> </ul>	100 000
<ul> <li>Number of registerable nodes, max.</li> </ul>	20 000
<ul> <li>Number of subscriptions per session, max.</li> </ul>	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
— Number of server methods, max.	50
<ul> <li>Number of inputs/outputs per server method,</li> </ul>	20
max. — Number of monitored items, recommended	2 000; for 1 s sampling interval and 1 s send interval
max. — Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20
- Number of nodes for user-defined server	of the type "Reference namespace" 5 000
interfaces, max.	
Further protocols     MODBUS	
	Yes; MODBUS TCP
Isochronous mode	Y
Equidistance	Yes
S7 message functions	
Number of login stations for message functions, max.	64
Program alarms	Yes
Number of configurable program messages, max.	10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	5 000
Hamber of loudable program messages in Nora, max.	

Number of simultaneously active program alarms	
Number of program alarms	800
<ul> <li>Number of alarms for system diagnostics</li> </ul>	200
Number of alarms for motion technology objects	160
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 8 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	
<ul> <li>Status/control variable</li> </ul>	Yes; without fail-safe
Variables	inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
<ul> <li>Number of variables, max.</li> </ul>	
<ul> <li>— of which status variables, max.</li> </ul>	200; per job
<ul> <li>— of which control variables, max.</li> </ul>	200; per job
Forcing	
Forcing	Yes; without fail-safe
<ul> <li>Forcing, variables</li> </ul>	peripheral inputs/outputs (without fail-safe)
<ul> <li>Number of variables, max.</li> </ul>	200
Diagnostic buffer	
• present	Yes
<ul> <li>Number of entries, max.</li> </ul>	3 200
<ul> <li>— of which powerfail-proof</li> </ul>	500
Traces	
<ul> <li>Number of configurable Traces</li> </ul>	4; Up to 512 KB of data per trace are possible
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
ERROR LED	Yes
MAINT LED	Yes
<ul> <li>Connection display LINK TX/RX</li> </ul>	Yes
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Supported technology objects	
	Yes; Note: The number of technology objects affects the cycle time of
Supported technology objects	
Supported technology objects Motion Control • Number of available Motion Control resources for	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
Supported technology objects Motion Control  Number of available Motion Control resources for technology objects	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
Supported technology objects Motion Control • Number of available Motion Control resources for technology objects • Required Motion Control resources	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per external encoder	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per external encoder         — per output cam	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per cam track	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe         • Positioning axis	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per cam track         — per probe         • Positioning axis         — Number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe         • Positioning axis         — per probe         • Number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe         • Positioning axis         — number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe         • Positioning axis         — number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe         • Positioning axis         — per probe         • Positioning axis         — Number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID_3Step	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 40 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe         • Positioning axis         — per probe         • Positioning axis         — number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID_Temp	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 40 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per output cam         — per probe         • Positioning axis         — per cam track         — per probe         • Positioning axis         — Number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID-Temp         Counting and measuring	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per synchronous axis         — per output cam         — per probe         • Positioning axis         — per probe         • Positioning axis         — number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID-Temp         Counting and measuring         • High-speed counter	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         - per speed-controlled axis         - per positioning axis         - per synchronous axis         - per output cam         - per or of positioning axes at motion control cycle of 4 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID-Temp         Counting and measuring         • High-speed counter         Standards, approvals, certifica	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         - per speed-controlled axis         - per positioning axis         - per output cam         - per output cam         - per probe         • Positioning axis         - per probe         • Positioning axis         - per probe         • Positioning axis         - Number of positioning axes at motion control cycle of 4 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID-Temp         Counting and measuring         • High-speed counter         Standards, approvals, certificates         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per output cam         — per output cam         — per probe         • Positioning axis         — per probe         • Positioning axis         — per probe         • Positioning axis         — Number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID-Temp         Counting and measuring         • High-speed counter         Standards, approvals, certificates         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes PLe SIL 3
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per external encoder         — per output cam         — per probe         • Positioning axis         — per probe         • Positioning axis         — number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID-Temp         Counting and measuring         • High-speed counter         Standards, approvals, certificates         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508         Probability of failure (for service life of 20 years and repared)	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes PLe SIL 3 ir time of 100 hours)
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         — per speed-controlled axis         — per positioning axis         — per output cam         — per output cam         — per probe         • Positioning axis         — per probe         • Positioning axis         — per probe         • Positioning axis         — Number of positioning axes at motion control cycle of 4 ms (typical value)         — Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID-Temp         Counting and measuring         • High-speed counter         Standards, approvals, certificates         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes PLe SIL 3
Supported technology objects         Motion Control         • Number of available Motion Control resources for technology objects         • Required Motion Control resources         - per speed-controlled axis         - per positioning axis         - per synchronous axis         - per output cam         - per cam track         - per probe         • Positioning axis         - ner per probe         • Positioning axis         - ner per probe         • Positioning axis         - Number of positioning axes at motion control cycle of 4 ms (typical value)         - Number of positioning axes at motion control cycle of 8 ms (typical value)         Controller         • PID_Compact         • PID_Temp         Counting and measuring         • High-speed counter         Standards, approvals, certificates         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508         Probability of failure (for service life of 20 years and repa         — Low demand mode: PFDavg in accordance	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 2 400 40 80 160 80 20 160 40 7 14 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes PLe SIL 3 ir time of 100 hours)

accordance with SIL3	
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	0°C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
<ul> <li>vertical installation, min.</li> </ul>	0°0
<ul> <li>vertical installation, max.</li> </ul>	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
<ul> <li>Installation altitude above sea level, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe
— STL	Yes
— SCL	Yes
— GRAPH	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
<ul> <li>Password for display</li> </ul>	Yes
<ul> <li>Protection level: Write protection</li> </ul>	Yes; Specific write protection both for Standard and for Failsafe
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
<ul> <li>Protection level: Complete protection</li> </ul>	Yes
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
upper limit	adjustable maximum cycle time
Dimensions	
Width	70 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	830 g

Pobrano z: https://sterowniki-plc.net/sterownik-simatic-s7-1500f-cpu-1515f-2-pn-siemens-6es7515-2fm01-0ab0