



Figure similar

SIPLUS S7-400 CPU 416-3 based on 6ES7416-3XS07-0AB0 with conformal coating, -25...+70 °C, central processing unit with: work memory 16 MB, (8 MB code, 8 MB data), interfaces 1st interface MPI/DP 12 Mbps, 2nd interface PROFIBUS DP, 3rd interface plug-in IFM module

| General information                         |                                      |
|---------------------------------------------|--------------------------------------|
| Product type designation                    | CPU 416-3                            |
| HW functional status                        | 01                                   |
| Firmware version                            | V7.0                                 |
| based on                                    | <a href="#">6ES7416-3XS07-0AB0</a>   |
| Product function                            |                                      |
| • Isochronous mode                          | Yes; For PROFIBUS only               |
| Engineering with                            |                                      |
| • Programming package                       | STEP 7 V5.4 or higher with HSP 261   |
| CiR - Configuration in RUN                  |                                      |
| CiR synchronization time, basic load        | 100 ms                               |
| CiR synchronization time, time per I/O byte | 10 µs                                |
| Supply voltage                              |                                      |
| Rated value (DC)                            | Power supply via system power supply |
| Input current                               |                                      |
| from backplane bus 5 V DC, typ.             | 1.1 A                                |
| from backplane bus 5 V DC, max.             | 1.3 A                                |
| from backplane bus 24 V DC, max.            | 450 mA; 150 mA per DP interface      |
| from interface 5 V DC, max.                 | 90 mA; At each DP interface          |
| Power loss                                  |                                      |
| Power loss, typ.                            | 5.5 W                                |
| Storage                                     |                                      |
| Type of memory                              | RAM                                  |
| Work memory                                 |                                      |
| • integrated                                | 16 Mbyte                             |
| • integrated (for program)                  | 8 Mbyte                              |
| • integrated (for data)                     | 8 Mbyte                              |
| • expandable                                | No                                   |
| Load memory                                 |                                      |
| • expandable FEPR0M                         | Yes; with Memory Card (FLASH)        |
| • expandable FEPR0M, max.                   | 64 Mbyte                             |
| • integrated RAM, max.                      | 1 Mbyte                              |
| • expandable RAM                            | Yes; with Memory Card (RAM)          |
| • expandable RAM, max.                      | 64 Mbyte                             |
| Backup                                      |                                      |
| • present                                   | Yes                                  |
| • with battery                              | Yes; all data                        |
| • without battery                           | No                                   |

|                                               |                                                                                                 |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Battery</b>                                |                                                                                                 |
| <b>Backup battery</b>                         |                                                                                                 |
| • Backup current, typ.                        | 180 µA; up to 40 °C                                                                             |
| • Backup current, max.                        | 850 µA                                                                                          |
| • Backup time, max.                           | Dealt with in the module data manual with the secondary conditions and the factors of influence |
| • Feeding of external backup voltage to CPU   | 5 V DC to 15 V DC                                                                               |
| <b>CPU processing times</b>                   |                                                                                                 |
| for bit operations, typ.                      | 12.5 ns                                                                                         |
| for word operations, typ.                     | 12.5 ns                                                                                         |
| for fixed point arithmetic, typ.              | 12.5 ns                                                                                         |
| for floating point arithmetic, typ.           | 25 ns                                                                                           |
| <b>CPU-blocks</b>                             |                                                                                                 |
| <b>DB</b>                                     |                                                                                                 |
| • Number, max.                                | 10 000; Number range: 1 to 16000                                                                |
| • Size, max.                                  | 64 kbyte                                                                                        |
| <b>FB</b>                                     |                                                                                                 |
| • Number, max.                                | 5 000; Number range: 0 to 7999                                                                  |
| • Size, max.                                  | 64 kbyte                                                                                        |
| <b>FC</b>                                     |                                                                                                 |
| • Number, max.                                | 5 000; Number range: 0 to 7999                                                                  |
| • Size, max.                                  | 64 kbyte                                                                                        |
| <b>OB</b>                                     |                                                                                                 |
| • Number, max.                                | see instruction list                                                                            |
| • Size, max.                                  | 64 kbyte                                                                                        |
| • Number of free cycle OBs                    | 1; OB 1                                                                                         |
| • Number of time alarm OBs                    | 8; OB 10-17                                                                                     |
| • Number of delay alarm OBs                   | 4; OB 20-23                                                                                     |
| • Number of cyclic interrupt OBs              | 9; OB 30-38 (shortest cycle that can be set = 500 µs)                                           |
| • Number of process alarm OBs                 | 8; OB 40-47                                                                                     |
| • Number of DPV1 alarm OBs                    | 3; OB 55-57                                                                                     |
| • Number of isochronous mode OBs              | 4; OB 61-64                                                                                     |
| • Number of multicomputing OBs                | 1; OB 60                                                                                        |
| • Number of background OBs                    | 1; OB 90                                                                                        |
| • Number of startup OBs                       | 3; OB 100-102                                                                                   |
| • Number of asynchronous error OBs            | 9; OB 80-88                                                                                     |
| • Number of synchronous error OBs             | 2; OB 121, 122                                                                                  |
| <b>Nesting depth</b>                          |                                                                                                 |
| • per priority class                          | 24                                                                                              |
| • additional within an error OB               | 2                                                                                               |
| <b>Counters, timers and their retentivity</b> |                                                                                                 |
| <b>S7 counter</b>                             |                                                                                                 |
| • Number                                      | 2 048                                                                                           |
| <b>Retentivity</b>                            |                                                                                                 |
| — can be set                                  | Yes                                                                                             |
| — preset                                      | Z 0 to Z 7                                                                                      |
| <b>Counting range</b>                         |                                                                                                 |
| — lower limit                                 | 0                                                                                               |
| — upper limit                                 | 999                                                                                             |
| <b>IEC counter</b>                            |                                                                                                 |
| • present                                     | Yes                                                                                             |
| • Type                                        | SFB                                                                                             |
| • Number                                      | Unlimited (limited only by RAM capacity)                                                        |
| <b>S7 timer</b>                               |                                                                                                 |
| • Number                                      | 2 048                                                                                           |
| <b>Retentivity</b>                            |                                                                                                 |
| — adjustable                                  | Yes                                                                                             |
| — preset                                      | No times retentive                                                                              |
| <b>Time range</b>                             |                                                                                                 |

|                                                                                |                                                                                                 |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| — lower limit                                                                  | 10 ms                                                                                           |
| — upper limit                                                                  | 9 990 s                                                                                         |
| <b>IEC timer</b>                                                               |                                                                                                 |
| • present                                                                      | Yes                                                                                             |
| • Type                                                                         | SFB                                                                                             |
| • Number                                                                       | Unlimited (limited only by RAM capacity)                                                        |
| <b>Data areas and their retentivity</b>                                        |                                                                                                 |
| Retentive data area (incl. timers, counters, flags), max.                      | Total working and load memory (with backup battery)                                             |
| <b>Flag</b>                                                                    |                                                                                                 |
| • Size, max.                                                                   | 16 kbyte; Size of bit memory address area                                                       |
| • Retentivity available                                                        | Yes                                                                                             |
| • Retentivity preset                                                           | MB 0 to MB 15                                                                                   |
| • Number of clock memories                                                     | 8; in 1 memory byte                                                                             |
| <b>Local data</b>                                                              |                                                                                                 |
| • adjustable, max.                                                             | 32 kbyte                                                                                        |
| • preset                                                                       | 16 kbyte                                                                                        |
| <b>Address area</b>                                                            |                                                                                                 |
| <b>I/O address area</b>                                                        |                                                                                                 |
| • Inputs                                                                       | 16 kbyte                                                                                        |
| • Outputs                                                                      | 16 kbyte                                                                                        |
| <b>Process image</b>                                                           |                                                                                                 |
| • Inputs, adjustable                                                           | 16 kbyte                                                                                        |
| • Outputs, adjustable                                                          | 16 kbyte                                                                                        |
| • Inputs, default                                                              | 512 byte                                                                                        |
| • Outputs, default                                                             | 512 byte                                                                                        |
| • consistent data, max.                                                        | 244 byte                                                                                        |
| • Access to consistent data in process image                                   | Yes                                                                                             |
| <b>Subprocess images</b>                                                       |                                                                                                 |
| • Number of subprocess images, max.                                            | 15                                                                                              |
| <b>Digital channels</b>                                                        |                                                                                                 |
| • Inputs                                                                       | 131 072                                                                                         |
| — of which central                                                             | 131 072                                                                                         |
| • Outputs                                                                      | 131 072                                                                                         |
| — of which central                                                             | 131 072                                                                                         |
| <b>Analog channels</b>                                                         |                                                                                                 |
| • Inputs                                                                       | 8 192                                                                                           |
| — of which central                                                             | 8 192                                                                                           |
| • Outputs                                                                      | 8 192                                                                                           |
| — of which central                                                             | 8 192                                                                                           |
| <b>Hardware configuration</b>                                                  |                                                                                                 |
| Number of expansion units, max.                                                | 21                                                                                              |
| connectable OPs                                                                | 95                                                                                              |
| Multicomputing                                                                 | Yes; 4 CPUs max. (with UR1 or UR2)                                                              |
| <b>Interface modules</b>                                                       |                                                                                                 |
| • Number of connectable IMs (total), max.                                      | 6                                                                                               |
| • Number of connectable IM 460s, max.                                          | 6                                                                                               |
| • Number of connectable IM 463s, max.                                          | 4; IM 463-2                                                                                     |
| <b>Number of DP masters</b>                                                    |                                                                                                 |
| • integrated                                                                   | 2                                                                                               |
| • via CP                                                                       | 10; CP 443-5 Extended                                                                           |
| • via IM 467                                                                   | 4                                                                                               |
| • Mixed mode IM + CP permitted                                                 | No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode            |
| • via interface module                                                         | 1                                                                                               |
| • Number of pluggable S5 modules (via adapter capsule in central device), max. | 6                                                                                               |
| <b>Number of IO Controllers</b>                                                |                                                                                                 |
| • Integrated                                                                   | 0                                                                                               |
| • Via CP                                                                       | 4; No mixed operation of CP443-1 EX40 and CP443-1 EX 41/EX20/GX20, max. 4 in central controller |

|                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of operable FMs and CPs (recommended)                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• FM</li> <li>• CP, PtP</li> <li>• PROFIBUS and Ethernet CPs</li> </ul>                                                                                                                                                               | Limited by number of slots and number of connections<br>CP 440: Limited by number of slots; CP 441: limited by number of connections<br>14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller |
| Slots                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• required slots</li> </ul>                                                                                                                                                                                                           | 2                                                                                                                                                                                                                                                                                       |
| Time of day                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                         |
| Clock                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• Hardware clock (real-time)</li> <li>• retentive and synchronizable</li> <li>• Resolution</li> <li>• Deviation per day (buffered), max.</li> <li>• Deviation per day (unbuffered), max.</li> </ul>                                   | Yes<br>Yes<br>1 ms<br>1.7 s; Power off<br>8.6 s; For power On                                                                                                                                                                                                                           |
| Operating hours counter                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• Number</li> <li>• Number/Number range</li> <li>• Range of values</li> <li>• Granularity</li> <li>• retentive</li> </ul>                                                                                                             | 16<br>0 to 15<br>SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2 <sup>31</sup> - 1 hours<br>1 h<br>Yes                                                                                                                                                                                |
| Clock synchronization                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• supported</li> <li>• to MPI, master</li> <li>• on MPI, device</li> <li>• to DP, master</li> <li>• on DP, device</li> <li>• in AS, master</li> <li>• in AS, device</li> <li>• on Ethernet via NTP</li> <li>• to IF 964 DP</li> </ul> | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>No; Via CP<br>Yes                                                                                                                                                                                                                      |
| Time difference in system when synchronizing via                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• MPI, max.</li> </ul>                                                                                                                                                                                                                | 200 ms                                                                                                                                                                                                                                                                                  |
| Interfaces                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                         |
| Interfaces/bus type                                                                                                                                                                                                                                                          | 1 x MPI/PROFIBUS DP, 1 x PROFIBUS DP, 1 x PROFIBUS DP (optionally pluggable)                                                                                                                                                                                                            |
| Number of RS 485 interfaces                                                                                                                                                                                                                                                  | 2; Combined MPI / PROFIBUS DP and PROFIBUS DP                                                                                                                                                                                                                                           |
| Number of other interfaces                                                                                                                                                                                                                                                   | 1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-0AB0)                                                                                                                                                                                                                |
| 1. Interface                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                         |
| Interface type                                                                                                                                                                                                                                                               | MPI/PROFIBUS DP                                                                                                                                                                                                                                                                         |
| Isolated                                                                                                                                                                                                                                                                     | Yes                                                                                                                                                                                                                                                                                     |
| Interface types                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• RS 485</li> <li>• Output current of the interface, max.</li> </ul>                                                                                                                                                                  | Yes<br>150 mA                                                                                                                                                                                                                                                                           |
| Protocols                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• MPI</li> <li>• PROFIBUS DP master</li> <li>• PROFIBUS DP device</li> </ul>                                                                                                                                                          | Yes<br>Yes<br>Yes                                                                                                                                                                                                                                                                       |
| MPI                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• Number of connections</li> <li>• Transmission rate, max.</li> </ul>                                                                                                                                                                 | 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1<br>12 Mbit/s                                                                                                                                                          |
| Services                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>— S7 communication, as client</li> <li>— S7 communication, as server</li> </ul>  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes                                                                                                                                                                                                                                           |

|                                                       |                                                                                                                   |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| PROFIBUS DP master                                    |                                                                                                                   |
| • Number of connections, max.                         | 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 |
| • Transmission rate, max.                             | 12 Mbit/s                                                                                                         |
| • max. number of DP devices                           | 32                                                                                                                |
| Services                                              |                                                                                                                   |
| — PG/OP communication                                 | Yes                                                                                                               |
| — Routing                                             | Yes; S7 routing                                                                                                   |
| — Global data communication                           | No                                                                                                                |
| — S7 basic communication                              | Yes                                                                                                               |
| — S7 communication                                    | Yes                                                                                                               |
| — S7 communication, as client                         | Yes                                                                                                               |
| — S7 communication, as server                         | Yes                                                                                                               |
| — Equidistance                                        | Yes                                                                                                               |
| — Isochronous mode                                    | Yes                                                                                                               |
| — SYNC/FREEZE                                         | Yes                                                                                                               |
| — activation/deactivation of DP devices               | Yes                                                                                                               |
| — Direct data exchange (slave-to-slave communication) | Yes                                                                                                               |
| — DPV1                                                | Yes                                                                                                               |
| Address area                                          |                                                                                                                   |
| — Inputs, max.                                        | 2 kbyte                                                                                                           |
| — Outputs, max.                                       | 2 kbyte                                                                                                           |
| User data per DP device                               |                                                                                                                   |
| — user data per DP device, max.                       | 244 byte                                                                                                          |
| — Inputs, max.                                        | 244 byte                                                                                                          |
| — Outputs, max.                                       | 244 byte                                                                                                          |
| — Slots, max.                                         | 244                                                                                                               |
| — per slot, max.                                      | 128 byte                                                                                                          |
| PROFIBUS DP device                                    |                                                                                                                   |
| • Number of connections                               | 32                                                                                                                |
| • GSD file                                            | <a href="https://www.modulplc.com/?s=6AG1416-3XS07-7AB0">https://www.modulplc.com/?s=6AG1416-3XS07-7AB0</a>       |
| • Transmission rate, max.                             | 12 Mbit/s                                                                                                         |
| • automatic baud rate search                          | No                                                                                                                |
| • Address area, max.                                  | 32; Virtual slots                                                                                                 |
| • User data per address area, max.                    | 32 byte                                                                                                           |
| — of which consistent, max.                           | 32 byte                                                                                                           |
| Services                                              |                                                                                                                   |
| — PG/OP communication                                 | Yes; with interface active                                                                                        |
| — Routing                                             | Yes; with interface active                                                                                        |
| — Global data communication                           | No                                                                                                                |
| — S7 basic communication                              | No                                                                                                                |
| — S7 communication                                    | Yes                                                                                                               |
| — S7 communication, as client                         | Yes                                                                                                               |
| — S7 communication, as server                         | Yes                                                                                                               |
| — Direct data exchange (slave-to-slave communication) | No                                                                                                                |
| — DPV1                                                | No                                                                                                                |
| Transfer memory                                       |                                                                                                                   |
| — Inputs                                              | 244 byte                                                                                                          |
| — Outputs                                             | 244 byte                                                                                                          |
| 2. Interface                                          |                                                                                                                   |
| Interface type                                        | PROFIBUS DP                                                                                                       |
| Isolated                                              | Yes                                                                                                               |
| Interface types                                       |                                                                                                                   |
| • RS 485                                              | Yes                                                                                                               |
| • Output current of the interface, max.               | 150 mA                                                                                                            |
| Protocols                                             |                                                                                                                   |
| • PROFIBUS DP master                                  | Yes                                                                                                               |
| • PROFIBUS DP device                                  | Yes                                                                                                               |

|                                                       |                                                                                                             |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| PROFIBUS DP master                                    |                                                                                                             |
| • Number of connections, max.                         | 32                                                                                                          |
| • Transmission rate, max.                             | 12 Mbit/s                                                                                                   |
| • max. number of DP devices                           | 125                                                                                                         |
| Services                                              |                                                                                                             |
| — PG/OP communication                                 | Yes                                                                                                         |
| — Routing                                             | Yes; S7 routing                                                                                             |
| — Global data communication                           | No                                                                                                          |
| — S7 basic communication                              | Yes                                                                                                         |
| — S7 communication                                    | Yes                                                                                                         |
| — S7 communication, as client                         | Yes                                                                                                         |
| — S7 communication, as server                         | Yes                                                                                                         |
| — Equidistance                                        | Yes                                                                                                         |
| — Isochronous mode                                    | Yes                                                                                                         |
| — SYNC/FREEZE                                         | Yes                                                                                                         |
| — activation/deactivation of DP devices               | Yes                                                                                                         |
| — Direct data exchange (slave-to-slave communication) | Yes                                                                                                         |
| — DPV1                                                | Yes                                                                                                         |
| Address area                                          |                                                                                                             |
| — Inputs, max.                                        | 8 kbyte                                                                                                     |
| — Outputs, max.                                       | 8 kbyte                                                                                                     |
| User data per DP device                               |                                                                                                             |
| — user data per DP device, max.                       | 244 byte                                                                                                    |
| — Inputs, max.                                        | 244 byte                                                                                                    |
| — Outputs, max.                                       | 244 byte                                                                                                    |
| — Slots, max.                                         | 244                                                                                                         |
| — per slot, max.                                      | 128 byte                                                                                                    |
| PROFIBUS DP device                                    |                                                                                                             |
| • Number of connections                               | 32                                                                                                          |
| • GSD file                                            | <a href="https://www.modulplc.com/?s=6AG1416-3XS07-7AB0">https://www.modulplc.com/?s=6AG1416-3XS07-7AB0</a> |
| • Transmission rate, max.                             | 12 Mbit/s                                                                                                   |
| • Address area, max.                                  | 32                                                                                                          |
| • User data per address area, max.                    | 32 byte                                                                                                     |
| — of which consistent, max.                           | 32 byte                                                                                                     |
| Services                                              |                                                                                                             |
| — Routing                                             | Yes; with interface active                                                                                  |
| Transfer memory                                       |                                                                                                             |
| — Inputs                                              | 244 byte                                                                                                    |
| — Outputs                                             | 244 byte                                                                                                    |
| 3. Interface                                          |                                                                                                             |
| Interface type                                        | pluggable interface module (IF), technical data as for 2nd interface                                        |
| Plug-in interface modules                             | IF 964-DP (MLFB: 6AG1964-2AA04-2AB0)                                                                        |
| Isolated                                              | Yes                                                                                                         |
| automatic detection of transmission rate              | No                                                                                                          |
| Interface types                                       |                                                                                                             |
| • RS 485                                              | Yes                                                                                                         |
| • Output current of the interface, max.               | 150 mA                                                                                                      |
| Protocols                                             |                                                                                                             |
| • MPI                                                 | No                                                                                                          |
| • PROFIBUS DP master                                  | Yes                                                                                                         |
| • PROFIBUS DP device                                  | Yes                                                                                                         |
| PROFIBUS DP master                                    |                                                                                                             |
| • Number of connections, max.                         | 32                                                                                                          |
| • Transmission rate, max.                             | 12 Mbit/s                                                                                                   |
| • max. number of DP devices                           | 125                                                                                                         |
| Services                                              |                                                                                                             |
| — PG/OP communication                                 | Yes                                                                                                         |
| — Routing                                             | Yes; S7 routing                                                                                             |

|                                                       |                                                                                                             |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| — Global data communication                           | No                                                                                                          |
| — S7 basic communication                              | Yes                                                                                                         |
| — S7 communication                                    | Yes                                                                                                         |
| — S7 communication, as client                         | Yes                                                                                                         |
| — S7 communication, as server                         | Yes                                                                                                         |
| — Equidistance                                        | Yes                                                                                                         |
| — Isochronous mode                                    | Yes                                                                                                         |
| — SYNC/FREEZE                                         | Yes                                                                                                         |
| — activation/deactivation of DP devices               | Yes                                                                                                         |
| — Direct data exchange (slave-to-slave communication) | Yes                                                                                                         |
| — DPV0                                                | Yes                                                                                                         |
| — DPV1                                                | Yes                                                                                                         |
| <b>Address area</b>                                   |                                                                                                             |
| — Inputs, max.                                        | 8 kbyte                                                                                                     |
| — Outputs, max.                                       | 8 kbyte                                                                                                     |
| <b>User data per DP device</b>                        |                                                                                                             |
| — user data per DP device, max.                       | 244 byte                                                                                                    |
| — Inputs, max.                                        | 244 byte                                                                                                    |
| — Outputs, max.                                       | 244 byte                                                                                                    |
| — Slots, max.                                         | 244                                                                                                         |
| — per slot, max.                                      | 128 byte                                                                                                    |
| <b>PROFIBUS DP device</b>                             |                                                                                                             |
| • Number of connections                               | 32                                                                                                          |
| • GSD file                                            | <a href="https://www.modulplc.com/?s=6AG1416-3XS07-7AB0">https://www.modulplc.com/?s=6AG1416-3XS07-7AB0</a> |
| • Transmission rate, max.                             | 12 Mbit/s                                                                                                   |
| • automatic baud rate search                          | No                                                                                                          |
| • Address area, max.                                  | 32                                                                                                          |
| • User data per address area, max.                    | 32 byte                                                                                                     |
| — of which consistent, max.                           | 32 byte                                                                                                     |
| <b>Services</b>                                       |                                                                                                             |
| — PG/OP communication                                 | Yes                                                                                                         |
| — Routing                                             | Yes; with interface active                                                                                  |
| — Global data communication                           | No                                                                                                          |
| — S7 basic communication                              | No                                                                                                          |
| — S7 communication                                    | Yes                                                                                                         |
| — S7 communication, as client                         | Yes                                                                                                         |
| — S7 communication, as server                         | Yes                                                                                                         |
| — Direct data exchange (slave-to-slave communication) | No                                                                                                          |
| — DPV1                                                | No                                                                                                          |
| <b>Transfer memory</b>                                |                                                                                                             |
| — Inputs                                              | 244 byte                                                                                                    |
| — Outputs                                             | 244 byte                                                                                                    |
| <b>Protocols</b>                                      |                                                                                                             |
| <b>SIMATIC communication</b>                          |                                                                                                             |
| • S7 routing                                          | Yes                                                                                                         |
| <b>Open IE communication</b>                          |                                                                                                             |
| • ISO-on-TCP (RFC1006)                                | Via CP 443-1 and loadable FB                                                                                |
| — Data length, max.                                   | 1 452 bytes via CP 443-1 Adv.                                                                               |
| <b>Web server</b>                                     |                                                                                                             |
| • supported                                           | No                                                                                                          |
| <b>Isochronous mode</b>                               |                                                                                                             |
| Equidistance                                          | Yes                                                                                                         |
| Number of DP masters with isochronous mode            | 3                                                                                                           |
| User data per isochronous slave, max.                 | 244 byte                                                                                                    |
| shortest clock pulse                                  | 1 ms; 0.5 ms without use of SFC 126, 127                                                                    |
| max. cycle                                            | 32 ms                                                                                                       |
| <b>Communication functions</b>                        |                                                                                                             |

|                                                                     |                                                                                                                           |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| PG/OP communication                                                 | Yes                                                                                                                       |
| • Number of connectable OPs with message processing                 | 95; When using Alarm_S/SQ and Alarm_D/DQ                                                                                  |
| • Number of connectable OPs without message processing              | 95                                                                                                                        |
| Data record routing                                                 | Yes                                                                                                                       |
| Global data communication                                           |                                                                                                                           |
| • supported                                                         | Yes                                                                                                                       |
| • Number of GD loops, max.                                          | 16                                                                                                                        |
| • Number of GD packets, transmitter, max.                           | 16                                                                                                                        |
| • Number of GD packets, receiver, max.                              | 32                                                                                                                        |
| • Size of GD packets, max.                                          | 54 byte                                                                                                                   |
| • Size of GD packet (of which consistent), max.                     | 1 variable                                                                                                                |
| S7 basic communication                                              |                                                                                                                           |
| • supported                                                         | Yes                                                                                                                       |
| • User data per job, max.                                           | 76 byte                                                                                                                   |
| • User data per job (of which consistent), max.                     | 1 variable                                                                                                                |
| S7 communication                                                    |                                                                                                                           |
| • supported                                                         | Yes                                                                                                                       |
| • as server                                                         | Yes                                                                                                                       |
| • as client                                                         | Yes                                                                                                                       |
| • User data per job, max.                                           | 64 kbyte                                                                                                                  |
| • User data per job (of which consistent), max.                     | 462 byte; 1 variable                                                                                                      |
| S5 compatible communication                                         |                                                                                                                           |
| • supported                                                         | Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5                                                            |
| • User data per job, max.                                           | 8 kbyte                                                                                                                   |
| • User data per job (of which consistent), max.                     | 240 byte                                                                                                                  |
| • Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.       | 64/64                                                                                                                     |
| Standard communication (FMS)                                        |                                                                                                                           |
| • supported                                                         | Yes; Via CP and loadable FB                                                                                               |
| Number of connections                                               |                                                                                                                           |
| • overall                                                           | 96                                                                                                                        |
| • usable for PG communication                                       | 95                                                                                                                        |
| — reserved for PG communication                                     | 1                                                                                                                         |
| — adjustable for PG communication, max.                             | 0                                                                                                                         |
| • usable for OP communication                                       | 95                                                                                                                        |
| — reserved for OP communication                                     | 1                                                                                                                         |
| — adjustable for OP communication, max.                             | 0                                                                                                                         |
| • usable for S7 basic communication                                 | 94                                                                                                                        |
| — reserved for S7 basic communication                               | 0                                                                                                                         |
| — adjustable for S7 basic communication, max.                       | 0                                                                                                                         |
| • usable for S7 communication                                       | 94                                                                                                                        |
| — reserved for S7 communication                                     | 0                                                                                                                         |
| — adjustable for S7 communication, max.                             | 0                                                                                                                         |
| • usable for routing                                                | 47                                                                                                                        |
| — reserved for routing                                              | 0                                                                                                                         |
| — adjustable for routing, max.                                      | 0                                                                                                                         |
| S7 message functions                                                |                                                                                                                           |
| Number of login stations for message functions, max.                | 95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) |
| Symbol-related messages                                             | Yes                                                                                                                       |
| SCAN procedure                                                      | Yes                                                                                                                       |
| Program alarms                                                      | Yes                                                                                                                       |
| Process diagnostic messages                                         | Yes                                                                                                                       |
| simultaneously active Alarm_S blocks, max.                          | 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks                                                       |
| Alarm 8-blocks                                                      | Yes                                                                                                                       |
| • Number of instances for alarm 8 and S7 communication blocks, max. | 4 000                                                                                                                     |
| • preset, max.                                                      | 600                                                                                                                       |
| Process control messages                                            | Yes                                                                                                                       |
| Number of archives that can log on simultaneously (SFB 37           | 32                                                                                                                        |

|                                                                                              |                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AR_SEND)                                                                                     |                                                                                                                                                                                                                 |
| <b>Number of messages</b>                                                                    |                                                                                                                                                                                                                 |
| • overall, max.                                                                              | 1 024                                                                                                                                                                                                           |
| • in 100 ms grid, max.                                                                       | 128                                                                                                                                                                                                             |
| • in 500 ms grid, max.                                                                       | 512                                                                                                                                                                                                             |
| • in 1000 ms grid, max.                                                                      | 1 024                                                                                                                                                                                                           |
| <b>Number of additional values</b>                                                           |                                                                                                                                                                                                                 |
| • with 100 ms grid, max.                                                                     | 1                                                                                                                                                                                                               |
| • with 500, 1000 ms grid, max.                                                               | 10                                                                                                                                                                                                              |
| <b>Test commissioning functions</b>                                                          |                                                                                                                                                                                                                 |
| Status block                                                                                 | Yes; Up to 16 simultaneously                                                                                                                                                                                    |
| Single step                                                                                  | Yes                                                                                                                                                                                                             |
| Number of breakpoints                                                                        | 16                                                                                                                                                                                                              |
| <b>Status/control</b>                                                                        |                                                                                                                                                                                                                 |
| • Status/control variable                                                                    | Yes; Up to 16 variable tables                                                                                                                                                                                   |
| • Variables                                                                                  | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters                                                                                                                                            |
| • Number of variables, max.                                                                  | 70; Status/control                                                                                                                                                                                              |
| <b>Forcing</b>                                                                               |                                                                                                                                                                                                                 |
| • Forcing                                                                                    | Yes                                                                                                                                                                                                             |
| • Forcing, variables                                                                         | Inputs, outputs, bit memories, peripheral inputs, peripheral outputs                                                                                                                                            |
| • Number of variables, max.                                                                  | 512                                                                                                                                                                                                             |
| <b>Diagnostic buffer</b>                                                                     |                                                                                                                                                                                                                 |
| • present                                                                                    | Yes                                                                                                                                                                                                             |
| • Number of entries, max.                                                                    | 3 200                                                                                                                                                                                                           |
| — can be set                                                                                 | Yes                                                                                                                                                                                                             |
| — preset                                                                                     | 120                                                                                                                                                                                                             |
| <b>Service data</b>                                                                          |                                                                                                                                                                                                                 |
| • Can be read out                                                                            | Yes                                                                                                                                                                                                             |
| <b>Ambient conditions</b>                                                                    |                                                                                                                                                                                                                 |
| <b>Ambient temperature during operation</b>                                                  |                                                                                                                                                                                                                 |
| • min.                                                                                       | -25 °C; = Tmin                                                                                                                                                                                                  |
| • max.                                                                                       | 70 °C; = Tmax                                                                                                                                                                                                   |
| <b>Altitude during operation relating to sea level</b>                                       |                                                                                                                                                                                                                 |
| • Installation altitude above sea level, max.                                                | 5 000 m                                                                                                                                                                                                         |
| • Ambient air temperature-barometric pressure-altitude                                       | Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m) |
| <b>Relative humidity</b>                                                                     |                                                                                                                                                                                                                 |
| • With condensation, tested in accordance with IEC 60068-2-38, max.                          | 100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation                                                                                                               |
| <b>Resistance</b>                                                                            |                                                                                                                                                                                                                 |
| <b>Use in stationary industrial systems</b>                                                  |                                                                                                                                                                                                                 |
| — 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, *                                                                                                                                                                              |
| <b>Use on ships/at sea</b>                                                                   |                                                                                                                                                                                                                 |
| — to biologically active substances according to EN 60721-3-6                                | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request                                                                                                                                   |
| — to chemically active substances according to EN 60721-3-6                                  | Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *                                                                                                                        |
| — to mechanically active substances according to EN 60721-3-6                                | Yes; Class 6S3 incl. sand, dust; *                                                                                                                                                                              |
| <b>Usage in industrial process technology</b>                                                |                                                                                                                                                                                                                 |
| — Against chemically active substances acc. to EN 60654-4                                    | Yes; Class 3 (excluding trichlorethylene)                                                                                                                                                                       |
| — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 | Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)                             |
| <b>Remark</b>                                                                                |                                                                                                                                                                                                                 |

— 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!

|                                                                                                                                                                                                                                                                                                                                                                            |        |                                                                               |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------|----------------|
| Conformal coating                                                                                                                                                                                                                                                                                                                                                          |        |                                                                               |                |
| <ul style="list-style-type: none"><li>• Coatings for printed circuit board assemblies acc. to EN 61086</li><li>• Protection against fouling acc. to EN 60664-3</li><li>• Military testing according to MIL-I-46058C, Amendment 7</li><li>• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li></ul> |        | Yes; Class 2 for high reliability                                             |                |
|                                                                                                                                                                                                                                                                                                                                                                            |        | Yes; Type 1 protection                                                        |                |
|                                                                                                                                                                                                                                                                                                                                                                            |        | Yes; Discoloration of coating possible during service life                    |                |
|                                                                                                                                                                                                                                                                                                                                                                            |        | Yes; Conformal coating, Class A                                               |                |
| Configuration                                                                                                                                                                                                                                                                                                                                                              |        |                                                                               |                |
| Configuration software                                                                                                                                                                                                                                                                                                                                                     |        |                                                                               |                |
| <ul style="list-style-type: none"><li>• STEP 7</li></ul>                                                                                                                                                                                                                                                                                                                   |        | Yes                                                                           |                |
| Programming                                                                                                                                                                                                                                                                                                                                                                |        |                                                                               |                |
| <ul style="list-style-type: none"><li>• Command set</li></ul>                                                                                                                                                                                                                                                                                                              |        | see instruction list                                                          |                |
| <ul style="list-style-type: none"><li>• Nesting levels</li></ul>                                                                                                                                                                                                                                                                                                           |        | 7                                                                             |                |
| <ul style="list-style-type: none"><li>• Access to consistent data in process image</li></ul>                                                                                                                                                                                                                                                                               |        | Yes                                                                           |                |
| <ul style="list-style-type: none"><li>• System functions (SFC)</li></ul>                                                                                                                                                                                                                                                                                                   |        | see instruction list                                                          |                |
| <ul style="list-style-type: none"><li>• System function blocks (SFB)</li></ul>                                                                                                                                                                                                                                                                                             |        | see instruction list                                                          |                |
| Programming language                                                                                                                                                                                                                                                                                                                                                       |        |                                                                               |                |
| — LAD                                                                                                                                                                                                                                                                                                                                                                      |        | Yes                                                                           |                |
| — FBD                                                                                                                                                                                                                                                                                                                                                                      |        | Yes                                                                           |                |
| — STL                                                                                                                                                                                                                                                                                                                                                                      |        | Yes                                                                           |                |
| — SCL                                                                                                                                                                                                                                                                                                                                                                      |        | Yes                                                                           |                |
| — CFC                                                                                                                                                                                                                                                                                                                                                                      |        | Yes                                                                           |                |
| — GRAPH                                                                                                                                                                                                                                                                                                                                                                    |        | Yes                                                                           |                |
| — HiGraph®                                                                                                                                                                                                                                                                                                                                                                 |        | Yes                                                                           |                |
| Number of simultaneously active SFCs                                                                                                                                                                                                                                                                                                                                       |        |                                                                               |                |
| — DPSYC_FR                                                                                                                                                                                                                                                                                                                                                                 |        | 2; SFC 11; per interface                                                      |                |
| — D_ACT_DP                                                                                                                                                                                                                                                                                                                                                                 |        | 8; SFC 12; per interface                                                      |                |
| — RD_REC                                                                                                                                                                                                                                                                                                                                                                   |        | 8; SFC 59; per interface                                                      |                |
| — WR_REC                                                                                                                                                                                                                                                                                                                                                                   |        | 8; SFC 58; per interface                                                      |                |
| — WR_PARM                                                                                                                                                                                                                                                                                                                                                                  |        | 8; SFC 55; per interface                                                      |                |
| — PARM_MOD                                                                                                                                                                                                                                                                                                                                                                 |        | 1; SFC 57; per interface                                                      |                |
| — WR_DPARM                                                                                                                                                                                                                                                                                                                                                                 |        | 2; SFC 56; per interface                                                      |                |
| — DPNRM_DG                                                                                                                                                                                                                                                                                                                                                                 |        | 8; SFC 13; per interface                                                      |                |
| — RDSYSST                                                                                                                                                                                                                                                                                                                                                                  |        | 8; SFC 51                                                                     |                |
| — DP_TOPOL                                                                                                                                                                                                                                                                                                                                                                 |        | 1; SFC 103; per interface                                                     |                |
| Number of simultaneously active SFBs                                                                                                                                                                                                                                                                                                                                       |        |                                                                               |                |
| — RDREC                                                                                                                                                                                                                                                                                                                                                                    |        | 8; SFB 52; per interface, but not more than 32 across all external interfaces |                |
| — WRREC                                                                                                                                                                                                                                                                                                                                                                    |        | 8; SFB 53; per interface, but not more than 32 across all external interfaces |                |
| Know-how protection                                                                                                                                                                                                                                                                                                                                                        |        |                                                                               |                |
| <ul style="list-style-type: none"><li>• User program protection/password protection</li></ul>                                                                                                                                                                                                                                                                              |        | Yes                                                                           |                |
| <ul style="list-style-type: none"><li>• Block encryption</li></ul>                                                                                                                                                                                                                                                                                                         |        | Yes; With S7 block Privacy                                                    |                |
| Dimensions                                                                                                                                                                                                                                                                                                                                                                 |        |                                                                               |                |
| Width                                                                                                                                                                                                                                                                                                                                                                      |        | 50 mm                                                                         |                |
| Height                                                                                                                                                                                                                                                                                                                                                                     |        | 290 mm                                                                        |                |
| Depth                                                                                                                                                                                                                                                                                                                                                                      |        | 219 mm                                                                        |                |
| Weights                                                                                                                                                                                                                                                                                                                                                                    |        |                                                                               |                |
| Weight, approx.                                                                                                                                                                                                                                                                                                                                                            |        | 900 g                                                                         |                |
| Classifications                                                                                                                                                                                                                                                                                                                                                            |        |                                                                               |                |
|                                                                                                                                                                                                                                                                                                                                                                            |        | Version                                                                       | Classification |
|                                                                                                                                                                                                                                                                                                                                                                            | eClass | 16                                                                            | 27-24-22-07    |
|                                                                                                                                                                                                                                                                                                                                                                            | 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   | 10  | EC000236    |
| ETIM   | 9   | EC000236    |
| ETIM   | 8   | EC000236    |
| ETIM   | 7   | EC000236    |
| IDEA   | 4   | 3565        |
| UNSPSC | 15  | 32-15-17-05 |

Approvals / Certificates

General Product Approval



General Product Approval

EMV

For use in hazardous locations



last modified:

6/18/2025 