**General information**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW functional status</td>
<td>01</td>
</tr>
<tr>
<td>Firmware version</td>
<td>V3.2</td>
</tr>
<tr>
<td>Engineering with</td>
<td></td>
</tr>
<tr>
<td>Programming package</td>
<td>STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4</td>
</tr>
</tbody>
</table>

**Supply voltage**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated value (DC)</td>
<td>24 V</td>
</tr>
<tr>
<td>permissible range, lower limit (DC)</td>
<td>20.4 V</td>
</tr>
<tr>
<td>permissible range, upper limit (DC)</td>
<td>28.8 V</td>
</tr>
<tr>
<td>Reverse polarity protection</td>
<td>Yes; against destruction</td>
</tr>
<tr>
<td>external protection for power supply lines (recommendation)</td>
<td>2 A min.</td>
</tr>
<tr>
<td>Mains buffering</td>
<td></td>
</tr>
<tr>
<td>Mains/voltage failure stored energy time</td>
<td>5 ms</td>
</tr>
</tbody>
</table>

**Input current**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inrush current, max.</td>
<td>1.8 A; Typical</td>
</tr>
<tr>
<td>i²t</td>
<td>0.13 A²·s</td>
</tr>
<tr>
<td>from supply voltage 1L+, max.</td>
<td>352 mA; 426 mA with DP master module</td>
</tr>
<tr>
<td><strong>Output current</strong></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>---</td>
</tr>
<tr>
<td>for backplane bus (5 V DC), max.</td>
<td>700 mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Power loss</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power loss, typ.</td>
<td>5.5 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Memory</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work memory</strong></td>
<td></td>
</tr>
<tr>
<td>• integrated</td>
<td>256 kbyte; For program and data</td>
</tr>
<tr>
<td>• expandable</td>
<td>No</td>
</tr>
<tr>
<td>• Size of retentive memory for retentive data blocks</td>
<td>64 kbyte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Load memory</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Plug-in (MMC)</td>
<td>Yes</td>
</tr>
<tr>
<td>• Plug-in (MMC), max.</td>
<td>8 Mbyte</td>
</tr>
<tr>
<td>• Data management on MMC (after last programming), min.</td>
<td>10 y</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Backup</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• present</td>
<td>Yes; Ensured by SIMATIC Micro Memory Card (maintenance-free)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CPU processing times</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>for bit operations, typ.</td>
<td>0.06 µs</td>
</tr>
<tr>
<td>for word operations, typ.</td>
<td>0.12 µs</td>
</tr>
<tr>
<td>for fixed point arithmetic, typ.</td>
<td>0.16 µs</td>
</tr>
<tr>
<td>for floating point arithmetic, typ.</td>
<td>0.59 µs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CPU-blocks</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of blocks (total)</strong></td>
<td>1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DB</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number, max.</td>
<td>1 024; Number range: 1 to 16000</td>
</tr>
<tr>
<td>• Size, max.</td>
<td>64 kbyte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>FB</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number, max.</td>
<td>1 024; Number range: 0 to 7999</td>
</tr>
<tr>
<td>• Size, max.</td>
<td>64 kbyte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>FC</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number, max.</td>
<td>1 024; Number range: 0 to 7999</td>
</tr>
<tr>
<td>• Size, max.</td>
<td>64 kbyte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>OB</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Description</td>
<td>See S7-300 operation list</td>
</tr>
<tr>
<td>• Size, max.</td>
<td>64 kbyte</td>
</tr>
<tr>
<td>• Number of free cycle OBs</td>
<td>1; OB 1</td>
</tr>
<tr>
<td>• Number of time alarm OBs</td>
<td>1; OB 10</td>
</tr>
<tr>
<td>• Number of delay alarm OBs</td>
<td>2; OB 20, 21</td>
</tr>
<tr>
<td>Description</td>
<td>Details</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Number of cyclic interrupt OBs</td>
<td>4; OB 32, 33, 34, 35</td>
</tr>
<tr>
<td>Number of process alarm OBs</td>
<td>1; OB 40</td>
</tr>
<tr>
<td>Number of DPV1 alarm OBs</td>
<td>3; OB 55, 56, 57</td>
</tr>
<tr>
<td>Number of isochronous mode OBs</td>
<td>1; OB 61; only for PROFINET</td>
</tr>
<tr>
<td>Number of startup OBs</td>
<td>1; OB 100</td>
</tr>
<tr>
<td>Number of asynchronous error OBs</td>
<td>6; OB 80, 82, 83, 85, 86, 87 (OB83 only for centralized I/O and PROFINET I/O)</td>
</tr>
<tr>
<td>Number of synchronous error OBs</td>
<td>2; OB 121, 122</td>
</tr>
</tbody>
</table>

**Nesting depth**

- per priority class: 16
- additional within an error OB: 4

**Counters, timers and their retentivity**

**S7 counter**

- Number: 256

**Retentivity**

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

**Counting range**

- adjustable: Yes
- lower limit: 0
- upper limit: 999

**IEC counter**

- present: Yes
- Type: SFB
- Number: Unlimited (limited only by RAM capacity)

**S7 times**

- Number: 256

**Retentivity**

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

**Time range**

- lower limit: 10 ms
- upper limit: 9990 s

**IEC timer**

- present: Yes
- Type: SFB
- Number: Unlimited (limited only by RAM capacity)
### Data areas and their retentivity

<table>
<thead>
<tr>
<th>Flag</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Number, max.</td>
<td>256 byte</td>
</tr>
<tr>
<td>● Retentivity preset</td>
<td>MB 0 to MB 15</td>
</tr>
<tr>
<td>● Number of clock memories</td>
<td>8; 1 memory byte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data blocks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Retentivity adjustable</td>
<td>Yes; via non-retain property on DB</td>
</tr>
<tr>
<td>● Retentivity preset</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Address area

<table>
<thead>
<tr>
<th>I/O address area</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Inputs</td>
<td>2 048 byte</td>
</tr>
<tr>
<td>● Outputs</td>
<td>2 048 byte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process image</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Inputs, adjustable</td>
<td>2 048 byte</td>
</tr>
<tr>
<td>● Outputs, adjustable</td>
<td>2 048 byte</td>
</tr>
<tr>
<td>● Inputs, default</td>
<td>128 byte</td>
</tr>
<tr>
<td>● Outputs, default</td>
<td>128 byte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subprocess images</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Number of subprocess images, max.</td>
<td>1; With PROFINET IO, the length of the user data is limited to 1600 bytes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital channels</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Inputs</td>
<td>16 336</td>
</tr>
<tr>
<td>— of which central</td>
<td>496</td>
</tr>
<tr>
<td>● Outputs</td>
<td>16 336</td>
</tr>
<tr>
<td>— of which central</td>
<td>496</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analog channels</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Inputs</td>
<td>1 021</td>
</tr>
<tr>
<td>— of which central</td>
<td>124</td>
</tr>
<tr>
<td>● Outputs</td>
<td>1 021</td>
</tr>
<tr>
<td>— of which central</td>
<td>124</td>
</tr>
</tbody>
</table>

### Hardware configuration

| Number of modules per system, max.        | 63; Centralized  |

<table>
<thead>
<tr>
<th>Mounting rail</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Number of mounting rails that can be used</td>
<td>1</td>
</tr>
<tr>
<td>● Length of mounting rail, max.</td>
<td>Station width: ≤ 1 m or &lt; 2 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time of day</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Hardware clock (real-time)</td>
<td>Yes</td>
</tr>
<tr>
<td>● Retentive and synchronizable</td>
<td>Yes</td>
</tr>
<tr>
<td>● Backup time</td>
<td>6 wk; At 40 °C ambient temperature, typically</td>
</tr>
<tr>
<td>● Deviation per day, max.</td>
<td>10 s; Typ.: 2 s</td>
</tr>
</tbody>
</table>
- Behavior of the clock following POWER-ON
- Behavior of the clock following expiry of backup period

Clock continues running after POWER OFF
Clock continues to run with the time at which the power failure occurred

### Operating hours counter

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1</td>
</tr>
<tr>
<td>Number/Number range</td>
<td>0</td>
</tr>
<tr>
<td>Range of values</td>
<td>0 to 2^31 hours (when using SFC 101)</td>
</tr>
<tr>
<td>Granularity</td>
<td>1 h</td>
</tr>
<tr>
<td>retentive</td>
<td>Yes; Must be restarted at each restart</td>
</tr>
</tbody>
</table>

### Clock synchronization

- supported: Yes
- to MPI, master: No
- to MPI, slave: No
- in AS, master: No
- in AS, slave: No

### Interfaces

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of industrial Ethernet interfaces</td>
<td>1</td>
</tr>
<tr>
<td>Number of PROFINET interfaces</td>
<td>3</td>
</tr>
<tr>
<td>Number of wireless interfaces</td>
<td>0</td>
</tr>
</tbody>
</table>

#### 1. Interface

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface type</td>
<td>PROFINET</td>
</tr>
<tr>
<td>Physics</td>
<td>Ethernet</td>
</tr>
<tr>
<td>Isolated</td>
<td>Yes</td>
</tr>
<tr>
<td>automatic detection of transmission rate</td>
<td>Yes</td>
</tr>
<tr>
<td>Autonegotiation</td>
<td>Yes</td>
</tr>
<tr>
<td>Autocrossing</td>
<td>Yes</td>
</tr>
<tr>
<td>Change of IP address at runtime, supported</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Interface types

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ports</td>
<td>3; RJ45</td>
</tr>
<tr>
<td>integrated switch</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Protocols

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPI</td>
<td>No</td>
</tr>
<tr>
<td>PROFINET IO Controller</td>
<td>Yes; Also simultaneously with IO-Device functionality</td>
</tr>
<tr>
<td>PROFINET IO Device</td>
<td>Yes; Also simultaneously with IO Controller functionality</td>
</tr>
<tr>
<td>PROFINET CBA</td>
<td>Yes</td>
</tr>
<tr>
<td>PROFIBUS DP master</td>
<td>No</td>
</tr>
<tr>
<td>PROFIBUS DP slave</td>
<td>No</td>
</tr>
<tr>
<td>Open IE communication</td>
<td>Yes; Via TCP/IP, ISO on TCP, and UDP</td>
</tr>
<tr>
<td>Web server</td>
<td>Yes</td>
</tr>
<tr>
<td>Point-to-point connection</td>
<td>No</td>
</tr>
</tbody>
</table>

### PROFINET IO Controller
**Transmission rate, max.**

100 Mbit/s; full duplex

<table>
<thead>
<tr>
<th>Services</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>— PG/OP communication</td>
<td>Yes</td>
</tr>
<tr>
<td>— Routing</td>
<td>Yes; With DP master module</td>
</tr>
<tr>
<td>— S7 communication</td>
<td>Yes; with loadable FBs</td>
</tr>
<tr>
<td>— Isochronous mode</td>
<td>Yes; OB 61; only for PROFINET IO</td>
</tr>
<tr>
<td>— Open IE communication</td>
<td>Yes; Via TCP/IP, ISO on TCP, and UDP</td>
</tr>
<tr>
<td>— IRT</td>
<td>Yes</td>
</tr>
<tr>
<td>— MRP</td>
<td>Yes</td>
</tr>
<tr>
<td>— Shared device</td>
<td>Yes</td>
</tr>
<tr>
<td>— Prioritized startup</td>
<td>Yes</td>
</tr>
<tr>
<td>— Number of IO devices with prioritized startup, max.</td>
<td>32</td>
</tr>
<tr>
<td>— Number of connectable IO Devices, max.</td>
<td>128</td>
</tr>
<tr>
<td>— Of which IO devices with IRT, max.</td>
<td>64</td>
</tr>
<tr>
<td>— of which in line, max.</td>
<td>64</td>
</tr>
<tr>
<td>— Number of IO Devices with IRT and the option &quot;high flexibility&quot;</td>
<td>128</td>
</tr>
<tr>
<td>— of which in line, max.</td>
<td>64</td>
</tr>
<tr>
<td>— Number of connectable IO Devices for RT, max.</td>
<td>128</td>
</tr>
<tr>
<td>— of which in line, max.</td>
<td>128</td>
</tr>
<tr>
<td>— Activation/deactivation of IO Devices</td>
<td>Yes</td>
</tr>
<tr>
<td>— Number of IO Devices that can be simultaneously activated/deactivated, max.</td>
<td>8</td>
</tr>
<tr>
<td>— IO Devices changing during operation (partner ports), supported</td>
<td>Yes</td>
</tr>
<tr>
<td>— Number of IO Devices per tool, max.</td>
<td>8</td>
</tr>
<tr>
<td>— Device replacement without swap medium</td>
<td>Yes</td>
</tr>
<tr>
<td>— Send cycles</td>
<td>250 μs, 500 μs, 1 ms; 2 ms, 4 ms (not in the case of IRT with &quot;high flexibility&quot; option)</td>
</tr>
<tr>
<td>— Updating time</td>
<td>Minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the number of configured user data items.</td>
</tr>
<tr>
<td>— Updating times</td>
<td>250 μs to 512 ms (depends on operating mode; for more details, refer to Operating Instructions, &quot;Interface Module IM151-8 PN/DP CPU&quot;)</td>
</tr>
</tbody>
</table>

**Address area**

| Inputs, max.            | 2 kbyte |
| Outputs, max.           | 2 kbyte |
| User data consistency, max. | 1 024 byte; with PROFINET I/O |

**PROFINET IO Device**

**Services**
<table>
<thead>
<tr>
<th>Feature</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG/OP communication</td>
<td>Yes</td>
</tr>
<tr>
<td>Routing</td>
<td>Yes</td>
</tr>
<tr>
<td>S7 communication</td>
<td>Yes; with loadable FBs</td>
</tr>
<tr>
<td>Isochronous mode</td>
<td>No</td>
</tr>
<tr>
<td>Open IE communication</td>
<td>Yes; Via TCP/IP, ISO on TCP, and UDP</td>
</tr>
<tr>
<td>IRT</td>
<td>Yes</td>
</tr>
<tr>
<td>MRP</td>
<td>Yes</td>
</tr>
<tr>
<td>PROFIenergy</td>
<td>Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device</td>
</tr>
<tr>
<td>Shared device</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of IO Controllers with shared device, max.</td>
<td>2</td>
</tr>
</tbody>
</table>

**Transfer memory**

<table>
<thead>
<tr>
<th>Inputs, max.</th>
<th>Outputs, max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 440 byte; Per IO Controller with shared device</td>
<td>1 440 byte; Per IO Controller with shared device</td>
</tr>
</tbody>
</table>

**Submodules**

<table>
<thead>
<tr>
<th>Number, max.</th>
<th>User data per submodule, max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>1 024 byte</td>
</tr>
</tbody>
</table>

**PROFINET CBA**

- acyclic transmission: Yes
- cyclic transmission: Yes

**Open IE communication**

- Number of connections, max.: 8
- Local port numbers used at the system end: 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535

**2. Interface**

<table>
<thead>
<tr>
<th>Interface type</th>
<th>External interface via master module 6ES7138-4HA00-0AB0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>RS 485</td>
</tr>
<tr>
<td>Isolated</td>
<td>Yes</td>
</tr>
<tr>
<td>Power supply to interface (15 to 30 V DC), max.</td>
<td>No</td>
</tr>
</tbody>
</table>

**Protocols**

- MPI: No
- PROFINET IO Controller: No
- PROFINET IO Device: No
- PROFINET CBA: No
- PROFIBUS DP master: Yes
- PROFIBUS DP slave: No
- Open IE communication: No
- Web server: No

**PROFIBUS DP master**

- Transmission rate, max.: 12 Mbit/s
- Number of DP slaves, max.: 32; Per station
## Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG/OP communication</td>
<td>Yes</td>
</tr>
<tr>
<td>Routing</td>
<td>Yes</td>
</tr>
<tr>
<td>Global data communication</td>
<td>No</td>
</tr>
<tr>
<td>S7 basic communication</td>
<td>Yes; I blocks only</td>
</tr>
<tr>
<td>S7 communication</td>
<td>Yes</td>
</tr>
<tr>
<td>S7 communication, as client</td>
<td>No</td>
</tr>
<tr>
<td>S7 communication, as server</td>
<td>Yes</td>
</tr>
<tr>
<td>Equidistance</td>
<td>Yes</td>
</tr>
<tr>
<td>Isochronous mode</td>
<td>No</td>
</tr>
<tr>
<td>SYNC/FREEZE</td>
<td>Yes</td>
</tr>
<tr>
<td>Activation/deactivation of DP slaves</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of DP slaves that can be simultaneously activated/deactivated, max.</td>
<td>8</td>
</tr>
<tr>
<td>Direct data exchange (slave-to-slave communication)</td>
<td>Yes</td>
</tr>
<tr>
<td>DPV1</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## Address area

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs, max.</td>
<td>2 048 byte</td>
</tr>
<tr>
<td>Outputs, max.</td>
<td>2 048 byte</td>
</tr>
</tbody>
</table>

## User data per DP slave

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs, max.</td>
<td>244 byte</td>
</tr>
<tr>
<td>Outputs, max.</td>
<td>244 byte</td>
</tr>
</tbody>
</table>

## Protocols

### Open IE communication

- **TCP/IP**
  - Number of connections, max.: 8
  - Data length for connection type 01H, max.: 1 460 byte
  - Data length for connection type 11H, max.: 32 768 byte
  - several passive connections per port, supported: Yes
- **ISO-on-TCP (RFC1006)**
  - Number of connections, max.: 8
  - Data length, max.: 32 768 byte
- **UDP**
  - Number of connections, max.: 8
  - Data length, max.: 1 472 byte

## Web server

- supported: Yes
- User-defined websites: Yes
- Number of HTTP clients: 5
<table>
<thead>
<tr>
<th>Media redundancy</th>
<th>200 ms; PROFINET MRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Switchover time on line break, typ.</td>
<td></td>
</tr>
<tr>
<td>• Number of stations in the ring, max.</td>
<td>50</td>
</tr>
</tbody>
</table>

### Isochronous mode

| Isochronous operation (application synchronized up to terminal) | No |

### Communication functions

<table>
<thead>
<tr>
<th>PG/OP communication</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data record routing</td>
<td>Yes; With DP master module</td>
</tr>
</tbody>
</table>

### Global data communication

| • supported | No |

### S7 basic communication

<table>
<thead>
<tr>
<th>• supported</th>
<th>Yes; I blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• User data per job, max.</td>
<td>76 byte</td>
</tr>
<tr>
<td>• User data per job (of which consistent), max.</td>
<td>76 byte</td>
</tr>
</tbody>
</table>

### S7 communication

<table>
<thead>
<tr>
<th>• supported</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• as server</td>
<td>Yes; via integrated PROFINET interface and loadable FBs</td>
</tr>
<tr>
<td>• as client</td>
<td>See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)</td>
</tr>
<tr>
<td>• User data per job, max.</td>
<td></td>
</tr>
</tbody>
</table>

### PROFINET CBA (at set setpoint communication load)

| • Setpoint for the CPU communication load | 50 % |
| • Number of remote interconnection partners | 32 |
| • Number of functions, master/slave | 30 |
| • Total of all master/slave connections | 1 000 |
| • Data length of all incoming connections master/slave, max. | 4 000 byte |
| • Data length of all outgoing connections master/slave, max. | 4 000 byte |
| • Number of device-internal and PROFIBUS interconnections | 500 |
| • Data length of device-internal and PROFIBUS interconnections, max. | 4 000 byte |
| • Data length per connection, max. | 1 400 byte |

### Remote interconnections with acyclic transmission

| • Sampling frequency: Sampling time, min. | 500 ms |
| • Number of incoming interconnections | 100 |
| • Number of outgoing interconnections | 100 |
| • Data length of all incoming interconnections, max. | 2 000 byte |
| Data length of all outgoing interconnections, max. | 2000 byte |
| Data length per connection, max. | 1400 byte |
| Remote interconnections with cyclic transmission | |
| Transmission frequency: Transmission interval, min. | 1 ms |
| Number of incoming interconnections | 200 |
| Number of outgoing interconnections | 200 |
| Data length of all incoming interconnections, max. | 2000 byte |
| Data length of all outgoing interconnections, max. | 2000 byte |
| Data length per connection, max. | 450 byte |
| HMI variables via PROFINET (acyclic) | |
| Number of stations that can log on for HMI variables (PN OPC/iMap) | 3; 2x PN OPC/1x iMap |
| HMI variable updating | 500 ms |
| Number of HMI variables | 200 |
| Data length of all HMI variables, max. | 2000 byte |
| PROFIBUS proxy functionality | |
| supported | Yes |
| Number of linked PROFIBUS devices | 16 |
| Data length per connection, max. | 240 byte; Slave-dependent |
| iPAR server | |
| supported | Yes |
| Number of connections | |
| overall | 12 |
| usable for PG communication | 11 |
| reserved for PG communication | 1 |
| adjustable for PG communication, min. | 1 |
| adjustable for PG communication, max. | 11 |
| usable for OP communication | 11 |
| reserved for OP communication | 1 |
| adjustable for OP communication, min. | 1 |
| adjustable for OP communication, max. | 11 |
| usable for S7 basic communication | 10 |
| reserved for S7 basic communication | 0 |
| adjustable for S7 basic communication, min. | 0 |
| adjustable for S7 basic communication, max. | 10 |
| usable for S7 communication | 10; with loadable FBs |
— adjustable for S7 communication, max.
- total number of instances, max.
- usable for routing

### S7 message functions
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of login stations for message functions, max.</td>
<td>12; Depends on configured connections for PG/OP and S7 basic communication</td>
</tr>
<tr>
<td>Process diagnostic messages</td>
<td>Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ</td>
</tr>
<tr>
<td>Simultaneously active Alarm-S blocks, max.</td>
<td>300</td>
</tr>
</tbody>
</table>

### Test commissioning functions
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status block</td>
<td>Yes; Up to 2 simultaneously</td>
</tr>
<tr>
<td>Single step</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of breakpoints</td>
<td>4</td>
</tr>
</tbody>
</table>

### Status/control
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status/control variable</td>
<td>Yes</td>
</tr>
<tr>
<td>Variables</td>
<td>Inputs, outputs, memory bits, DB, times, counters</td>
</tr>
<tr>
<td>Number of variables, max.</td>
<td>30</td>
</tr>
<tr>
<td>Of which status variables</td>
<td>30</td>
</tr>
<tr>
<td>Of which control variables</td>
<td>14</td>
</tr>
</tbody>
</table>

### Forcing
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forcing</td>
<td>Yes</td>
</tr>
<tr>
<td>Forcing, variables</td>
<td>I/O</td>
</tr>
<tr>
<td>Number of variables, max.</td>
<td>10</td>
</tr>
</tbody>
</table>

### Diagnostic buffer
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of entries, max.</td>
<td>500</td>
</tr>
<tr>
<td>Adjustable</td>
<td>No</td>
</tr>
<tr>
<td>Of which powerfail-proof</td>
<td>100; Only the last 100 entries are retained</td>
</tr>
</tbody>
</table>

### Interrupts/diagnostics/status information
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarms</td>
<td>Yes</td>
</tr>
<tr>
<td>Diagnostics function</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Diagnostics indication LED
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For maintenance</td>
<td>Yes; MT</td>
</tr>
<tr>
<td>Bus fault BF (red)</td>
<td>Yes; BF-PN</td>
</tr>
<tr>
<td>Group error SF (red)</td>
<td>Yes</td>
</tr>
<tr>
<td>Monitoring 24 V voltage supply ON (green)</td>
<td>Yes</td>
</tr>
<tr>
<td>Bus activity PROFINET (green)</td>
<td>Yes; P1/-P2/-P3-Link</td>
</tr>
</tbody>
</table>

### Potential separation
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between PROFIBUS DP and all other circuit components</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Permissible potential difference
<table>
<thead>
<tr>
<th>Description</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>between different circuits</td>
<td>75 V DC/60 V AC</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>Isolation</strong></td>
<td></td>
</tr>
<tr>
<td>Isolation tested with</td>
<td>500 V DC</td>
</tr>
<tr>
<td><strong>Degree and class of protection</strong></td>
<td></td>
</tr>
<tr>
<td>IP degree of protection</td>
<td>IP20</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td></td>
</tr>
<tr>
<td>Configuration software</td>
<td>Yes; V5.5 or higher</td>
</tr>
<tr>
<td>● STEP 7</td>
<td></td>
</tr>
<tr>
<td><strong>Programming</strong></td>
<td></td>
</tr>
<tr>
<td>● Command set</td>
<td>see instruction list</td>
</tr>
<tr>
<td>● Nesting levels</td>
<td>8</td>
</tr>
<tr>
<td>● System functions (SFC)</td>
<td>see instruction list</td>
</tr>
<tr>
<td>● System function blocks (SFB)</td>
<td>see instruction list</td>
</tr>
<tr>
<td><strong>Programming language</strong></td>
<td></td>
</tr>
<tr>
<td>— LAD</td>
<td>Yes</td>
</tr>
<tr>
<td>— FBD</td>
<td>Yes</td>
</tr>
<tr>
<td>— STL</td>
<td>Yes</td>
</tr>
<tr>
<td>— SCL</td>
<td>Yes; Optional</td>
</tr>
<tr>
<td>— CFC</td>
<td>Yes; Optional</td>
</tr>
<tr>
<td>— GRAPH</td>
<td>Yes; Optional</td>
</tr>
<tr>
<td>— HiGraph®</td>
<td>Yes; Optional</td>
</tr>
<tr>
<td><strong>Know-how protection</strong></td>
<td></td>
</tr>
<tr>
<td>● User program protection/password protection</td>
<td>Yes</td>
</tr>
<tr>
<td>● Block encryption</td>
<td>Yes; With S7 block Privacy</td>
</tr>
<tr>
<td><strong>Cycle time monitoring</strong></td>
<td></td>
</tr>
<tr>
<td>● lower limit</td>
<td>1 ms</td>
</tr>
<tr>
<td>● upper limit</td>
<td>6 000 ms</td>
</tr>
<tr>
<td>● adjustable</td>
<td>Yes</td>
</tr>
<tr>
<td>● preset</td>
<td>150 ms</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>120 mm; DP master module: 35 mm</td>
</tr>
<tr>
<td>Height</td>
<td>119.5 mm</td>
</tr>
<tr>
<td>Depth</td>
<td>75 mm</td>
</tr>
<tr>
<td><strong>Weights</strong></td>
<td></td>
</tr>
<tr>
<td>Weight, approx.</td>
<td>320 g; DP master module: Approx. 100 g</td>
</tr>
</tbody>
</table>

last modified: 11/22/2019