TIA Portal V15.1
TIA Portal –
More than an engineering framework

Work open, virtual and connected!
Digital workflow with TIA Portal

Reduce your time-to-market!
Integrated engineering with TIA Portal

Increase your productivity!
Transparent operation with TIA Portal

Your gateway to automation in the Digital Enterprise
Digital Workflow with TIA Portal

**Feature / Function**

**Virtual Commissioning with SIMATIC Machine Simulator V1.0**

- Simulation platform based on SIMATIC S7-PLCSIM Advanced V2.0 and SIMIT V10
- Virtual validation of automation solutions, for machines in combination with NX MCD

**TIA Portal Openness**

- Upload F/PLC
- Parameter-specific access to ET 200SP modules
- PLC offline/offline comparison
- XML export of the snapshot of actual values

**TIA Portal Teamcenter Gateway**

- Support of Multiuser Engineering
### Integrated Engineering with TIA Portal

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Support of S7-1500R/H CPUs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Redundant and high-availability applications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support of kinematic functions with S7-1500T</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Graphical configuration of standard kinematics</td>
</tr>
<tr>
<td>• Commissioning with kinematic control panel</td>
</tr>
<tr>
<td>• Light trace to simplify the motion recording and visualization</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support of multifunctional platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Programming of CPU1518MFP</td>
</tr>
</tbody>
</table>
TIA Portal Multiuser – Commissioning mode

Shared commissioning in a team

In commissioning mode, the changes are automatically checked into the server project, compiled and loaded into the device when downloaded from the local session.
SINAMICS Startdrive V15.1
Highlights for all drives

Startdrive Advanced V15.1 –
Extension of Safety Acceptance Test

• Safety Acceptance Test for S120 and S210:
  • Guided Safety acceptance test for all drive-based Safety Integrated functionalities (Basic, Extended and Advanced Safety)
  • Generation of protocol as Excel file (xlsx format, also useable with OpenOffice)
SIMATIC MICRO-DRIVE
Perfect interaction in the system

SIMATIC S7-1500 (T) or SIMATIC S7-1200

SIMATIC MICRO-DRIVE

Feature / Function

- Flexibility & combinability of system components*
- PROFINET IRT (1ms)

- Safety Integrated: STO, SS1, SLT, SLS, SBC, SSM via PROFIsafe

- TIA Portal integration
- “One Button Tuning”

- One cable to motor**
- Integrated C1 EMC-Filter

- 24-48 V: 0,05-1kW
- Battery supply incl. energy recovery
- UL & Marine certification**

*For SIMATIC S7-1500 (T)
**For SIMATIC S7-1200
***For both variants
SIMATIC MICRO-DRIVE
HSP for TIA Portal

Devices and networks
PDC selection

Device diagnostics

Device configuration

Device parameter assignment
Nowości produkcyjne

Increase the availability of your plants with SIMATIC Notifier!

Szklarska Poręba
New milestones of productivity with … SIMATIC Notifier

Detect
React
Benefit
Source Devices, Communication and Target Devices

Target Devices
- Smartwatch with Android Wear 2 or higher
- Smartphone or tablet* with iOS11/Android 8 or higher

SIMATIC Notifier Server
- Configuration via webbrowser
- No connection to servers/devices outside the companys network necessary

Source Devices
- Controllers, HMIs, SCADA systems, ...
- Linkage accomplished via OPC UA DA or S7 communication
SIMATIC Notifier
Ordering Information

Notifier Server
for Windows:
6AV2170-0AA10-0AA0
Notifier Client:
6AV2170-0AA20-0AA0

Catalogue number:
SIMATIC Notifier Licensing

Basis (one time fee)
Notifier Server License incl. 1x Notifier Client License

Individually expendable (one time fee)
x-times Notifier Client licenses à 100 € each

\[
\begin{align*}
2 \times 100 \, \text{€} &= 500 \, \text{€} \\
3 \times 100 \, \text{€} &= 600 \, \text{€} \\
4 \times 100 \, \text{€} &= 700 \, \text{€} \\
\ldots \text{maximum 49} \times 100 \, \text{€} &= 5200 \, \text{€} \\
1, 2, 3, 4, \ldots 49
\end{align*}
\]
Engineered with TIA Portal

SIMATIC S7-1500 T-CPU
Agility in machine building

Szklarska Poręba

siemens.com/t-cpu
The SIMATIC Controllers Portfolio
Always the right controller – Plus integrated added value!

Advanced Controllers
SIMATIC S7-1500
- CPU 1511T/TF
- CPU 1515T/TF
- CPU 1516T/TF
- CPU 1517T/TF

Distributed Controllers
SIMATIC ET 200 CPU

Software Controllers
SIMATIC S7-1500

Basic Controllers
SIMATIC S7-1200

Engineered with TIA Portal

Efficient engineering
Innovative design
Reliable diagnostics
Safety Integrated
Security Integrated
Technology Integrated
Advanced Controller – SIMATIC S7-1500 T-CPU
Scalable motion control in the Advanced Controller portfolio

SIMATIC ET200SP Open Controller CPU 1515SP PC2 T/TF

- Complete Windows operating system on board
- Kinematics with up to 4 interpolating axes (TO Kinematics)
- Portfolio completion with Open Controller CPU 1515SP PC2 T
  CPU 1515SP PC2 TF
- SIMATIC ODK 1500S (ODK - Open Development Kit)
- Fail-safe CPU with extended Motion Control functions
### Overview

Motion control functions and typical applications

| Kinematics functions with conveyor tracking | • Cartesian gantries  
• Roll pickers  
• Articulated arm  
• Delta pickers  
• SCARA robots, ... |
| Kinematics functions | • Synchronized axes  
• Cross cutters  
• Flying shears, ... |
| Coordination (synchronous operation, cams) | • Palletizers, ...  
• Hoisting + vertical conveyors  
• Feeder + door control systems |
| Positioning | • Pumps, fans, mixers  
• Conveyor belts  
• Auxiliary drives, ... |
| Speed setpoint |  

---

**SIEMENS**

Ingenuity for life
Advanced Controller – SIMATIC S7-1500
Overview motion control functionalities (extract)

- Kinematics with up to 4 interpolating axes (T-CPU only)
- Offset of the leading value at the following axis (T-CPU only)
- Camming (T-CPU only)
- Absolute gearing (T-CPU only)
- Coupling onto actual values (T-CPU only)
- Relative gearing
- Encoder switch over to 2nd – 4th encoder (T-CPU only)
- Specification of motion vector from application (T-CPU only)
- Superimposed positioning during active motion
- Move axis to relative/absolute position
- Cyclic interface for torque data
- Moving an axis with torque limiting
- Setting a position
- Homing absolute and on the fly
- Traversing an axis with speed setpoint
- Enabling/disabling an axis
- Activating output cams and cam tracks and measuring inputs
- …
Artificial Intelligence in SIMATIC S7-1500/ET 200MP
ET 200MP TM NPU for AI
(Neural Processing Unit for Artificial Intelligence)

**Feature / Function**

**Artificial Intelligence module for S7-1500 and ET 200MP**
(ET 200MP TM NPU for AI)

- Processing of input data (camera, sound, CPU) via trained neural networks
- Connection of sensors via USB and Ethernet interface
- Engineering and handling via TIA Portal and AI Toolkit

**Benefit**

- Optimization of manufacturing processes
- Saving of additional components (e.g. IPC)
- Saving of engineering effort through direct communication with the CPU

**Use Cases**

- Robotics
- (Visual) Quality control
- Detection of process anomalies
- Condition monitoring (e.g. sound profiles)

**Additional Information:**
The module can be acquired after getting in contact with the Edge & AI Deployment Team *, for discussion and evaluation of the use cases

*Contact: SimaticEdgeAI.industry@siemens.com
Innovation SIMATIC Field PG M6 – future proof, lots of connections, more system performance

SIMATIC Field PG M6, comfort and advanced

Feature / Function

- 8th generation of Intel Core i5/i7 type H processors with UHD graphic 630
- Performant memory technology: DDR4-RAM, 8 to 32 GB, 2666 MHz, up to 2 TB SSD
## Siemens Industrial Edge
Enabling digitalization in automation

### Feature / Function

- **Edge system consisting out of**
  - Edge Management
  - Edge Apps
  - Edge Devices

- **Cloud based management system to manage Edge devices and deploy Apps on devices worldwide**

- **Possibility to develop own Apps based on edge platform as well as integrating Siemens Apps**

- **Edge integration into automation portfolio based on**
  - Dedicated Edge devices: IPC
  - Edge enabled automation devices

### Benefit

- **Implement digitalization requirements in automation today & tomorrow**

- **Monitor status and health of worldwide distributed edge devices efficiently**

- **Deploy apps easily to distributed devices enabling new use cases**

- **Enabling various automation tasks on app basis e.g.**
  - Real time data analytics with AI
  - Data processing
  - Data visualization

- **Handle analytical as well as communication tasks**
Innovation SIMATIC Multifunctional Platform
Flexible high level language integration into the S7-1500 PLC

SIMATIC CPU 1518(F)-4 PN/DP MFP

<table>
<thead>
<tr>
<th>Feature / Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Integration of high level language application and PLC program into one hardware</td>
</tr>
<tr>
<td>• PLC integrated functions and PLC independent applications in C/C++ for any application (e.g. protocol converter, database, …)</td>
</tr>
<tr>
<td>• Code generation with model based development tool, e.g. Matlab Simulink</td>
</tr>
<tr>
<td>• Regular firmware updates stand for highest security standards</td>
</tr>
<tr>
<td>• Closed embedded operating systems</td>
</tr>
</tbody>
</table>
SIMATIC S7-1500R/H
**SIMATIC S7-1500**  
Higher availability by new S7-1500R and S7-1500H

S7-1500R: CPU 1513R/1515R

S7-1500H: CPU 1517H

### Feature / Function

**Redundant PLCs**
- Switchover time 200 – 500ms
- Support of up to 50 devices in PROFINET-Ring
- System – IP Address
- Configuration in TIA-Portal like Standard CPU

**High-Availability PLC**
- Same features as Redundant PLC
- Dedicated High Performance synchronization modules
- Distance between CPUs up to 10 km
- Switchover time < 100ms
Focus applications (1. delivery step)

- Airport-Logistics
- Tunnel
- HVAC
- Water & Wastewater
## SIMATIC S7-1500R/H
### PLC Hardware in 1st Release step

<table>
<thead>
<tr>
<th></th>
<th>S7-1513R-1PN</th>
<th>S7-1515R-2PN</th>
<th>S7-1517H-3PN</th>
<th>Short Distance &lt;= 10m</th>
<th>Long Distance &lt;= 10km</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program / memory</strong></td>
<td>350 kB code</td>
<td>500 kB code</td>
<td>2 MB code</td>
<td>Fiber Optic Cable</td>
<td>Plastic</td>
</tr>
<tr>
<td></td>
<td>1.5 MB data</td>
<td>3 MB data</td>
<td>8 MB data</td>
<td></td>
<td>Glass fiber</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td>X1</td>
<td>X2 X1</td>
<td>X2 X1 X3 X4</td>
<td>Sync module SFP</td>
<td></td>
</tr>
<tr>
<td><strong>Firmware</strong></td>
<td>V2.6</td>
<td>V2.6</td>
<td>V2.6</td>
<td>6ES7960-1CB00-0AA5</td>
<td>6ES7960-1FB00-0AA5</td>
</tr>
</tbody>
</table>

X1: PROFINET IO Controller, Supports RT, MRP, Transport Protocol TCP/IP, Open User Communication
X2: PROFINET Basic Services, Transport Protocol TCP/IP, Open User Communication
### SIMATIC S7-1500R/H
Periphery in 1st Release step

<table>
<thead>
<tr>
<th>IM 155-6PN HF ET 200SP</th>
<th>IM 155-5PN HF ET 200MP</th>
<th>PN/PN coupler</th>
<th>SINAMICS S120</th>
</tr>
</thead>
<tbody>
<tr>
<td>6ES7-155-6AU00-0CN0</td>
<td>6ES7-155-5AA00-0AC0</td>
<td>6ES7-158-3AD10-0XA0</td>
<td></td>
</tr>
</tbody>
</table>

| Firmware | >=V4.2 | >=V4.2 | >=V4.2 | >=V5.1 |

SFP = Small Form-factor Pluggable
PNO PROFINET System redundancy

**S1 Mode**
- PLC
  - PROFNET IO Network
  - IM | IO

**S1 Device**
- S → Single interface
- 1 → one connection to one PLC

**S2 Mode**
- H-PLC | H-PLC
  - PROFNET IO Network
  - IM | IO

**S2 Device**
- S → Single interface
- 2 → can switch between two connections

**R1 Mode**
- H-PLC | H-PLC
  - PROFNET IO Network
  - IM | IM | IO

**R1 Device**
- R → Redundant interface
- 1 → each interface has one connection to one PLC

**Standard PLC**

**For R/H Release 1**

**Future 1500H release**
Configuration example (1st Release step)

CPU1515R

CPU 1515R
Primary

CPU 1515R
Backup

Switch

PC

Panel

Standard PLC

MRP-RING

ET200 MP/SP

ET200 MP/SP

ET200 MP/SP

ET200 MP/SP

Panel
Configuration example SIMATIC S7-1500H (1\textsuperscript{st} Release step) CPU1517H
SIMATIC ET 200
The role of I/O in IP65/67 in Industry 4.0
SIMATIC ET 200 Portfolio Overview

- Efficient engineering
- Innovative design
- Reliable diagnostics
- Safety Integrated
- Consistent scalability
- Technology Integrated
The use of IP65/67 components represents:

- Saving space without cabinet
- Mounting directly on the machine
- Flexible mounting options
- Powerful and compact block periphery
- Robust construction
- Use under tough conditions
- High vibration resistance
- Different communication possibilities

IO systems in IP65/67 for outside the control cabinet
Perfect adjustment to individual applications
SIMATIC ET 200
The fitting solution for every requirement

1 S7-1500 I/O und ET 200MP: Directly connectable to S7-1500
2 ET 200SP: Compact I/O system for IP20
3 Distributed Controller: distributed intelligence

4 ET 200AL: The compact block IO system for IP65/67 …
5 …directly connected to the ET 200SP
6 …connected via Profinet / Profibus interface
7 ET 200pro: The modular I/O system for IP65/67
8 ET 200eco PN: Block I/O for IP65/67 for outdoor requirements
## Positioning and preferred areas of application

<table>
<thead>
<tr>
<th>Exemplary areas of application</th>
<th>System features</th>
<th>Unique selling points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ET 200AL</strong>&lt;br&gt;• Handling / Assembly&lt;br&gt;• Special machine building</td>
<td>Light and flexible applicable system, even on difficult-to-reach plant components</td>
<td>Counter, IO modules can be connected directly to ET 200SP system, IO-Link master</td>
</tr>
<tr>
<td><strong>ET 200pro</strong>&lt;br&gt;• Automobile industry&lt;br&gt;• Conveyor technology/Logistics&lt;br&gt;• Machine tools</td>
<td>Modular and multifunctional system with a large module portfolio</td>
<td>CPU S7-1500, IO-Link master, motor starter, frequency inverter, RFID, fail-safe modules, valve terminal modules</td>
</tr>
<tr>
<td><strong>ET 200eco PN</strong>&lt;br&gt;• Automobile industry&lt;br&gt;• Packing machines&lt;br&gt;• Machine tools&lt;br&gt;• Food &amp; Beverage (cooling systems)&lt;br&gt;• General plant construction</td>
<td>Robust system thanks to metal housing, can also be reliably used outdoors and in potentially explosive atmospheres</td>
<td>Fail-safe mixing module F-DI/ F-DQ, IO-Link Master, approved for ATEX2 (gas) / 22 (dust), fail-safe module, operation from -40°C</td>
</tr>
</tbody>
</table>
# SIMATIC ET 200SP
The right connection for every performance requirement

<table>
<thead>
<tr>
<th>Level</th>
<th>Modules</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic</strong></td>
<td>Up to 12</td>
<td>• Basic functions (all modules except Safety can be used)</td>
</tr>
<tr>
<td></td>
<td>modules</td>
<td>• Operation with gaps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2 x Ethernet ports</td>
</tr>
<tr>
<td><strong>Standard</strong></td>
<td>up to 32</td>
<td>• Safety Integrated modules</td>
</tr>
<tr>
<td></td>
<td>modules</td>
<td>• Expansion in IP 67 (ET 200AL connection)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Single hot swapping</td>
</tr>
<tr>
<td><strong>High Feature</strong></td>
<td>up to 64</td>
<td>• Flexible connection via copper or fiber optic BusAdapter</td>
</tr>
<tr>
<td></td>
<td>modules</td>
<td>• Isochronous mode: 250 µs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Multi hot swapping</td>
</tr>
<tr>
<td><strong>High Speed</strong></td>
<td>up to 30</td>
<td>• Isochronous mode: 125µs</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>up to 64</td>
<td>• S7-1500 CPU integrated</td>
</tr>
<tr>
<td></td>
<td>modules</td>
<td>• Web server onboard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Local data backup using memory card</td>
</tr>
</tbody>
</table>
SIMATIC ET 200SP
the flexible connection with the Busadapter (BA)

- **BA 2xRJ45**: 2 RJ 45 Ports
- **BA 2xFc**: 2 Fast Connect
- **BA SCRJ/RJ45**: 1 RJ 45 Ports, 1 FO*
- **BA SCRJ/FC**: 1 Fast Connect, 1 FO*
- **BA 2xLC**: 2 FO* with SCRJ plug
- **BA 2xLC**: 2 LC** glass fiber-optic
- **BA LC/RJ45**: 1 RJ 45 Ports, 1 LC* -glass fiber
- **BA LC/FC**: 1 Fast Connect, 1 LC* -glass fiber

* Fibre optic POF, PCF, PCF-GI

** Lucent Connector
SIMATIC ET 200SP
The I/O system with all the options

Basic
- Basic diagnostics
- Basic functions

Standard
+ Adjustability using parameters
+ Module-based diagnostics
+ Faster data processing

High Feature
+ Channel-specific diagnostics
+ Alternative operating modes
+ Expanded functionalities

High Speed
+ Isochronous mode
+ Fastest possible data exchange
+ Oversampling
**SIMATIC ET 200SP – Technological functions**

**ET 200SP - 6ES7 131-6BF00-0DA0. 6ES7 132-6BD20-0DA0**

<table>
<thead>
<tr>
<th>Feature/function</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DI 8x24VDC High Speed</strong></td>
<td><strong>Counting</strong></td>
</tr>
<tr>
<td>• DI</td>
<td>• Four 32-bit pulse counter inputs</td>
</tr>
<tr>
<td>• Counting (4-channel)</td>
<td>• One gate or direction input per channel</td>
</tr>
<tr>
<td>• DQ 4x24VDC/2A High Speed</td>
<td>• Max. counting frequency approx. <strong>10 kHz</strong></td>
</tr>
<tr>
<td>• DQ (energy-saving mode)</td>
<td></td>
</tr>
<tr>
<td>• PWM</td>
<td></td>
</tr>
<tr>
<td><strong>Alle High Speed Module</strong></td>
<td><strong>Pulse Width Modulation</strong></td>
</tr>
<tr>
<td>(digital/ analog)</td>
<td>• Four PWM outputs</td>
</tr>
<tr>
<td>• Oversampling</td>
<td>• Activation via pulse/pause ratio 0.0% to</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>• Period duration configurable from <strong>0.2ms</strong> to <strong>59.73ms</strong></td>
</tr>
</tbody>
</table>

**Benefits**

- **Counting**
  - Four 32-bit pulse counter inputs
  - One gate or direction input per channel
  - Max. counting frequency approx. **10 kHz**

- **Pulse Width Modulation**
  - Four PWM outputs
  - Activation via pulse/pause ratio 0.0% to 100.0%
  - Period duration configurable from **0.2ms to 59.73ms**

- **Oversampling**
  - Output of analog values with maximum resolution of **31.25µs**
  - Acquire analog values with maximum resolution **50µs**
## Feature

### 4 control modes (parameterizable by channel)
- Half-wave control
- Full-wave control
- Phase angle control

- Parameterizable start-up delay of the output power during module / CPU start-up
- Parameterizable output filter for softstarts & -stops

### Channel-wise parameterizable diagnostics

## Benefit

- **Space-saving solution for simple heating and drying processes**
  (e.g. for the power control of IR-lamps)

- **Ensuring product quality & machine availability**
  - Relieving the power supply network by avoiding peak currents
    - on startup
    - when switching the outputs
  - Protection of heating objects by reducing thermal stress during heating and cooling

- **Minimal downtimes** due to detailed diagnostics in clear text
**AI 4xTC HighSpeed** (6ES7 134-6JD00-0DA1)

High measuring accuracy and precision in temperature measurements

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declared Conformity* acc. to</td>
<td>Handling Security for furnace manufacturers in the industries</td>
</tr>
<tr>
<td>• AMS2750E</td>
<td>- Aerospace (AMS)</td>
</tr>
<tr>
<td>(Aerospace Material Specification)</td>
<td>• Automotive (CQI-9)</td>
</tr>
<tr>
<td>• CQI-9</td>
<td>through the certified measuring accuracy and performance when measuring temperature values for heat treatment of metals</td>
</tr>
<tr>
<td>(Chartered Quality Institute)</td>
<td>Increasing the availability and robustness of temperature measurements in harsher environmental conditions</td>
</tr>
</tbody>
</table>

**New parameter: outliers cleanup**

Suppression of interference pulses, e.g. through switching operations in the system

**Increase of the Common Mode Voltage** from 10V to 60V *(Max. potential difference between the inputs)*

*Declaration of Conformity in SIOS: [Link](#)*
**New module DI 8x24VAC/48VUC BA (6ES7131-6CF00-0AU0)**

Digital input module for variable input voltages

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>DI 8x24AC/48VUC BA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of channels</td>
<td>8</td>
</tr>
<tr>
<td>Channels isolated</td>
<td>NO</td>
</tr>
<tr>
<td>BaseUnit Type</td>
<td>U0</td>
</tr>
</tbody>
</table>
| Supply voltage / Input-voltages (DI) | AC: 24 - 48V (50 / 60Hz)  
DC: 48V (40.8 – 57.3V) |
| encoder supply           | 8                   |
| • Amount                 | Yes; per module, (Fuse replaceable) |
| • Short Circuit protection|                     |
| Diagnostics              | Monitoring of the supply voltage  
Monitoring of the encoder supply |

**Flexible connection of variable input voltages** for use in outdoor areas, e.g.:

- Tunnel
- Sewage treatment
- Railway application

**Fuse** (replaceable)

**Sensor connection**
- 1/-2-wire
- 3/-4-wire
- BU
- BU + PotDis
## Charging with ET 200SP Technology modules

**New DC Charging Modul: SIMATIC ET 200SP TM ECC PL ST**

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication controller for conductive charging of eCars in accordance of IEC 61851 &amp; IEC 15118</td>
<td>Realization of norm conformal DC charging solutions with intelligent data communication</td>
</tr>
<tr>
<td>Modular design in System of ET 200SP</td>
<td>Individual extension options for cooling the cable and status LEDs</td>
</tr>
<tr>
<td>Integrated Powerline Communication in accordance GreenPhy</td>
<td><strong>Secure data exchange</strong> between charging infrastructure and vehicle</td>
</tr>
<tr>
<td>Parameterizable contact for contactor</td>
<td><strong>Safe</strong> evaluation of charging conditions</td>
</tr>
<tr>
<td>Integrated DQ for safe shutdown of charging voltage</td>
<td>Time sensitive <strong>safe shutdown</strong></td>
</tr>
</tbody>
</table>

**TM ECC 2xPWM (AC-Charging)**

**New**

**TM ECC PL ST (DC-Charging)**
Functional Safety with ET 200
New Possibilities by new fail-safe I/O modules

ET 200eco PN 4 F-DI/3F-DQ
6ES7146-6FF00-0AB0

ET 200SP F-AI (0)4..20 mA
6ES7136-6AA00-0CA1

Feature / Function

**ET 200ecoPN 4 F-DI/3F-DQ**
- Mix-IO module with fail-safe In- and Outputs (2A) (up to PI e/SIL 3)
- 1oo2-evaluation onboard
- Channel granular diagnostics
- Retentive PROFlsafe address via Coding-Element (no DIP Switches)
- Standardized Y-connector

**ET 200SP F-AI (0)4..20 mA**
- 4 analog inputs for 0(4)..20 mA
- 2 or 4 sensors (2xSIL3, 4xSIL2)
- Resolution 15bit + VZ
- Channel granular diagnostics
- 1oo2-evaluation onboard incl. hysteresis
- Retentive PROFlsafe address via Coding-Element (no DIP Switches)
## SIMATIC IPC127E

Ultra compact industrial PC as high performance gateway

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ultra compact housing (0,3l) with diverse mounting options (DIN Rail, wall, book mounting)</td>
<td>• Minimized footprint in cabinet or directly at the machine</td>
</tr>
<tr>
<td>• Optimized performance-volume ratio: 4 Core Atom-processor, 4 GB RAM, 128 GB SSD)</td>
<td>• Easy integration in new and existing systems</td>
</tr>
<tr>
<td>• Up to 3 LAN- and 4 USB interfaces</td>
<td>• Performant data collection und preprocessing</td>
</tr>
<tr>
<td>• Preconfigured variants available from stock.</td>
<td>• Visualization with WinCC RT Advanced</td>
</tr>
<tr>
<td></td>
<td>• Maximum connectivity for control level, field level and service</td>
</tr>
<tr>
<td></td>
<td>• The right product in a short time available</td>
</tr>
</tbody>
</table>
## Condition Monitoring Systems
Mechanical condition data become digital added value

### SIPLUS CMS1200 with SM1281

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Condition monitoring of mechanical components simply integrated in SIMATIC S7-1200 in a speed range of 3 to 16,000 rpm</td>
<td>• Early detection of mechanical damage</td>
</tr>
<tr>
<td></td>
<td>• Scheduled maintenance instead of spontaneous repair</td>
</tr>
<tr>
<td>• Direct data transfer to MindSpere via integrated MindConnect Lib: FW update</td>
<td>• Analysis software on board</td>
</tr>
<tr>
<td>• Speed calculation from vibration data via PLL algorithm</td>
<td>• Datatransfer without additional hardware</td>
</tr>
<tr>
<td>• CMS1200 data integrated in MindConnect Edge Analytics, a new MindApp for condition monitoring</td>
<td>• Speed determination without additional hardware</td>
</tr>
<tr>
<td></td>
<td>• SM1281 parametrization, visualization of vibration data in MindSphere</td>
</tr>
<tr>
<td></td>
<td>• Detailed analysis through additional characteristic values</td>
</tr>
</tbody>
</table>
Thank you for your attention!

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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