

| TIA-portalen V18

Nyheder for S7-1200/1500

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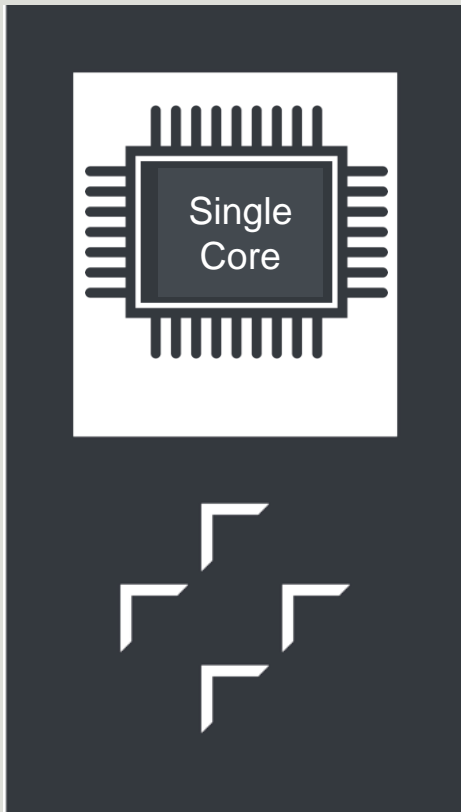
SIMATIC Hardware - S7-1200 CPU V4.6

TIA Portal	Firmware Version	1211	1212	1212F	1214	1214F	1215	1215F	1217
V17	V4.5	50	75	100	125	150			
V18	V4.6	75	100	150	200	250			

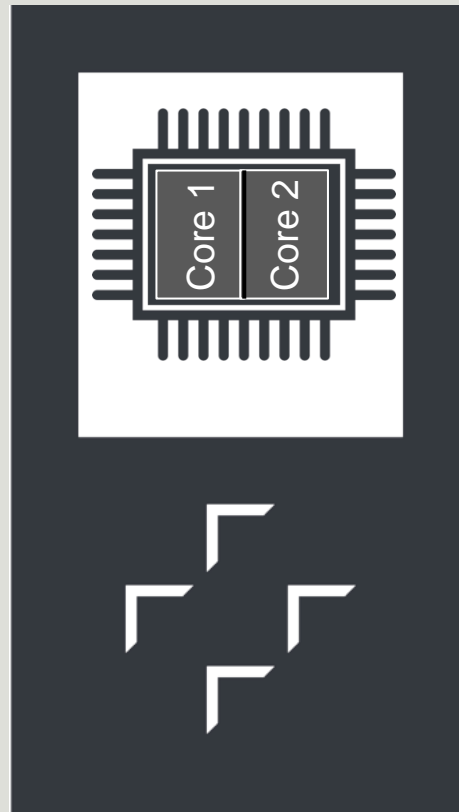
- The increased work memory allows the user to create projects that can do more
- Up to 2/3 additional through FW update for HW generation V4 (6ES721x-1xx40-0XB0)
- Can also be used with earlier versions of the TIA Portal



SIMATIC Hardware - New Hardware for CPUs ≤ 1516 starts with FW V3.0 & TIA Portal V18



6ES751x-xyyx0/1/2-0AB0
FW \leq V2.9



6ES751x-xyyx03-0AB0
FW = V3.0

New Hardware with 2 Core Processor

- Core 1
 - User program
 - Diagnoses
- Core 2
 - Communication

New Display implementation

Benefits

- Deterministic program processing (smaller jitter)
- Higher communication performance
- No separate Display FW needed

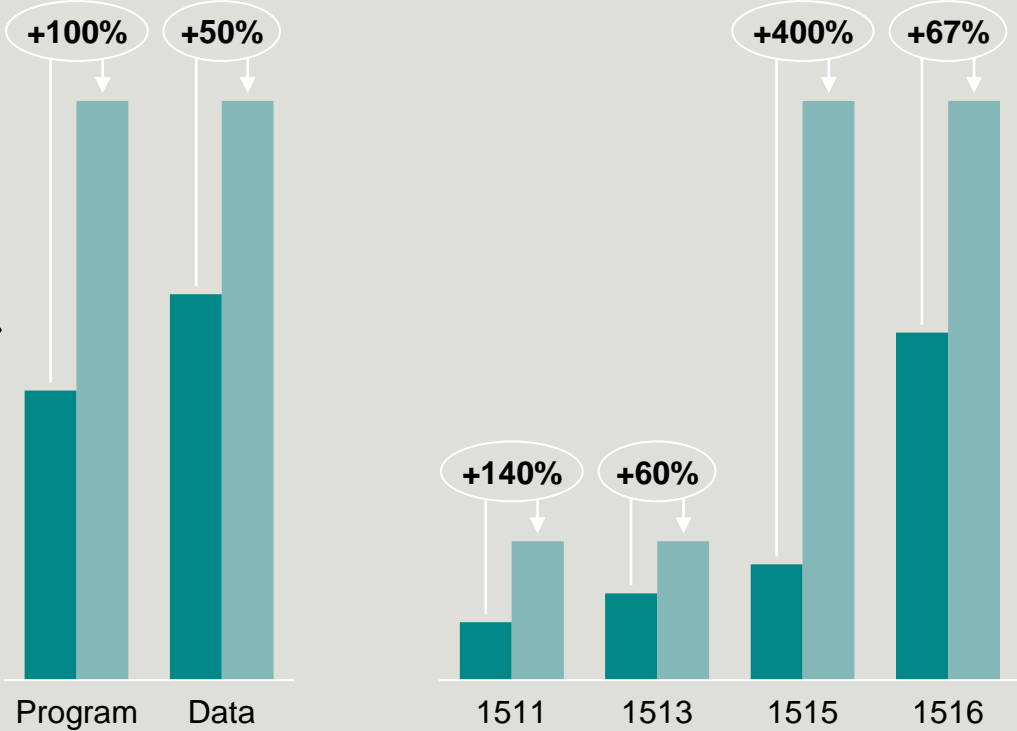


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New Hardware for CPUs ≤ 1516 starts with FW V3.0 & TIA Portal V18

The new hardware offers

- More memory
- More Performance
- Higher communication performance (2nd core)



2nd / 3rd Step:

- Gbit Ethernet on X2 of the CPU 1515 /1516
- 2nd PN Interface with IRT

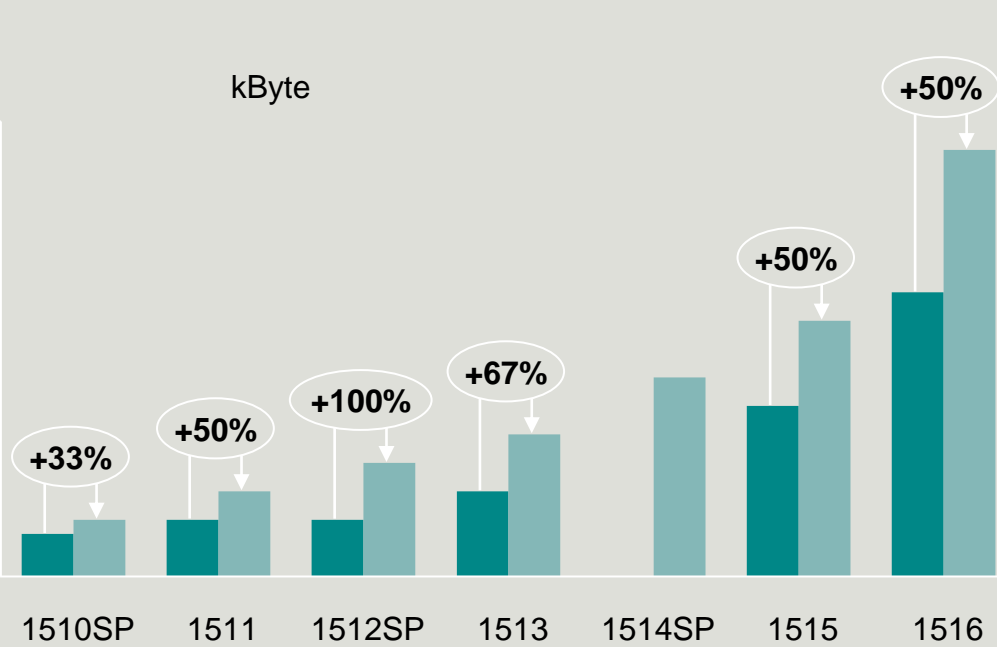
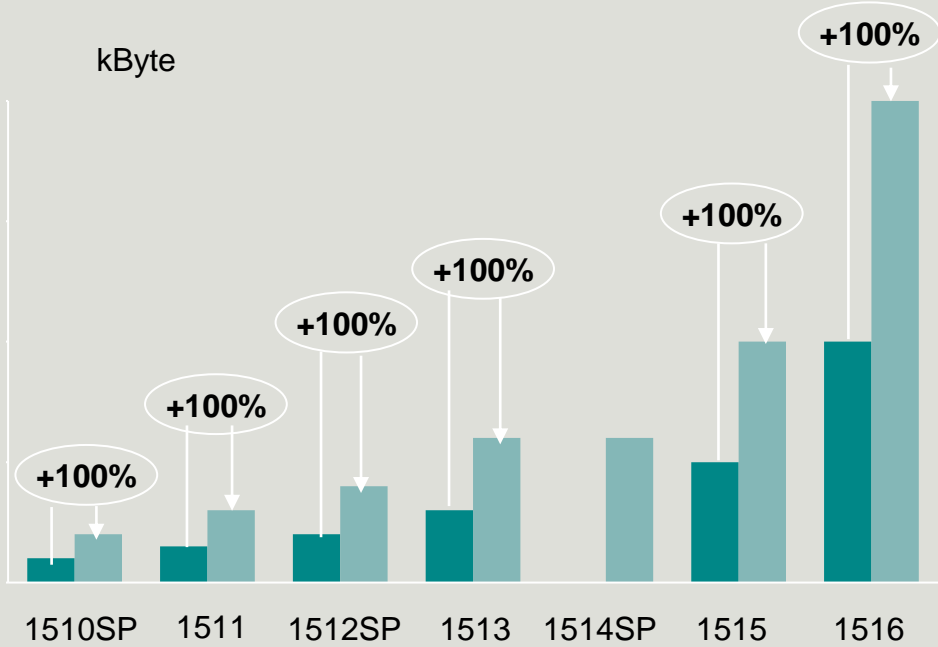
FW V2.9 (current articel no.) FW V3.0 (new articel no.)



SIMATIC Hardware - FW V3.0 & TIA Portal V18

+100% more program- and data memory

➤ more resources for future customer application extensions



Standard and Fail Safe

■ FW V2.9 (current article no.)

■ FW V3.0 (new article no.)



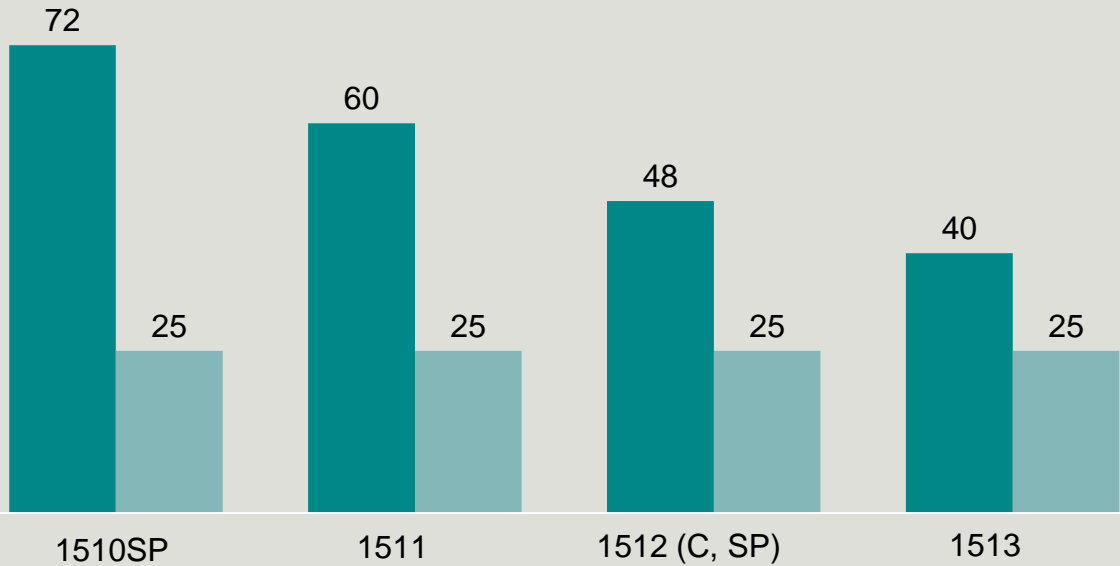
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SIMATIC Hardware - FW V3.0 & TIA Portal V18

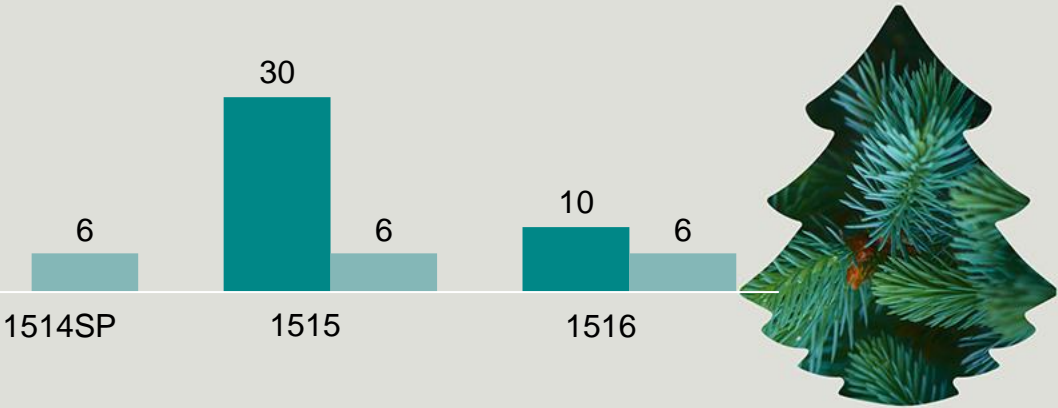
- 2 performance levels
- up to +400% performance increase

- Easier controller selection
- More customer use cases can be realized

Performance – Level 1 (Small)



Performance – Level 2 (Middle)



■ FW V2.9 (current article no.) ■ FW V3.0 (new article no.)



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SIMATIC Hardware

Increase/harmonization of quantity structure

Ambient temperature

- CPU 1511-1516 from -25°C - +60°C → -30°C - +60°C

- Same temperature range as most of IO modules
- Usable in more customer applications
- Easier controller selection

Retentive Data

- CPU 1510SP-1513 from 128 kB to 256 kB

- More memory space to prevent data loss in the event of power failure

Min. OB 3x cycle

- CPU 1510SP-1515 from 500µs to 250µs

- More frequent processing of program parts

UDP multicast circuits

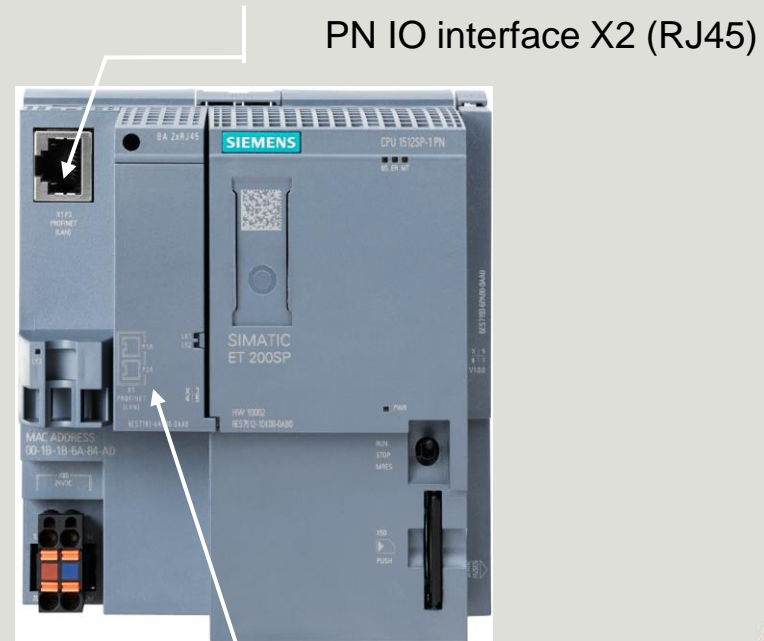
- CPU 1510SP-1513 from 5 to 78
- CPU 1515-1516 from 5 to 118

- Significantly more participants can be reached via UDP Multicast



New ET 200SP CPU 1514SP (F/T/TF)-2 PN with FW V3.0 & TIA Portal V18

- Comparable with memory concept, quantity structure and features of a SIMATIC S7-1500 CPU 1515(F) - 2 PN CPU
- Work memory
 - Program: **600/900 kByte**
 - Data: **3,5 MByte**
- Performance: Bit instruction time: **6 ns**
- **2 PROFINET IO interfaces**
 - PN IO interface X1
 - PROFINET RT/IRT
 - different BusAdapter with 2 Ports
 - PN IO interface X2
 - PROFINET RT



PN IO interface X2 (RJ45)

PN IO interface X1
BusAdapter (BA)
PN Port 1 and PN Port 2
(RJ45 , FC, SCRJ, LC)



SIMATIC Drive Controller - V3.0 and SINAMICS V5.2 x

New functions / features

- Increase in memory and MC resources
- X142 technology I/Os, event/period duration measurement
→ Additional measurement method "Multiple periods" for higher measurement accuracy for short periods.
- FW update SINAMICS Integrated via Webserver
- Kinematic functions for up to 6 interpolating axes (Option for CPU 1507D TF)
- Further new functions: additional SINAMICS Technology Extensions, ...

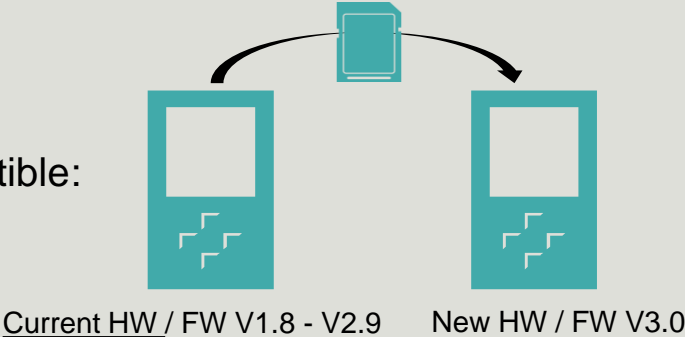


Increase in memory and MC resources		
CPU Type	CPU 1504D TF	CPU 1507D TF
Interface		
<ul style="list-style-type: none"> 1 PROFINET IO with IRT 2 PROFINET IO with RT 3 PROFINET base com (1 Gbit) PROFIBUS 		
Program memory	2 → 4 MB	6 → 15 MB
Data memory	4 → 6 MB	20 → 40 MB
Motion Control Resources	2.400 → 3.200	No change
Ext. Motion Control Res.	120 → 160	No change
Positioning axes: Maximum	30 → 40	160
Performance estimates		
Positioning axes: Typical	12 in 4 ms	55 in 4 ms

SIMATIC Hardware - Compatibility

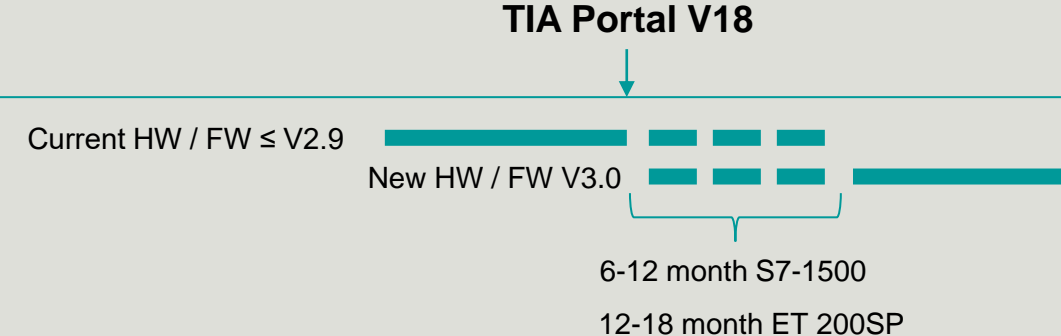
1. CPU 1510SP to CPU 1516

- FW V3.0 only for new article numbers



- Full spare part compatible:

- Parallel delivery of the old and new HW for 6-12 month:



2. CPU 1517/1518

- Same HW as today
- New functionality with FW V3.0 upgrade also for existing CPUs

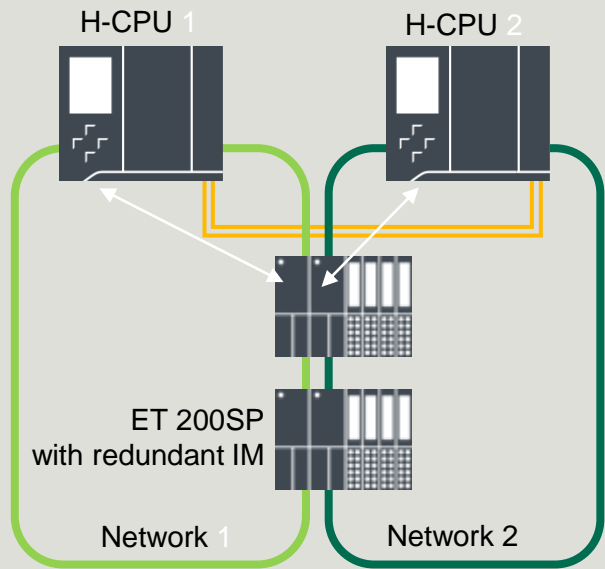
3. Compact and ET 200pro CPUs

- Same HW and FW (V2.9) as today
- No new functionality with TIA Portal V18!

4. Support of FO/LC BusAdapter for ET 200SP CPUs 1512SP(F) first with 2nd step (TIA Portal V19)



PROFINET System Redundancy R1 for S7-1500H and ET 200SP



Redundant Interface on ET 200
each with **1** relation to a H-controller

Increased plant availability with R1 redundancy

- Higher robustness in case of outage of components
- Seamless failover when one Interface Module fails

Redundancy now also on I/O Level

- The new redundant IM 155-6PN R1 for ET 200SP can be combined with all existing IO modules of ET 200SP
- Also supported: R1 with ET 200SP HA and ET 200iSP

Redundant Networks

- Process continues even in case of a complete network breakdown
- Redundant and single networks can be combined

R1 can be used with existing S7-1500H PLCs

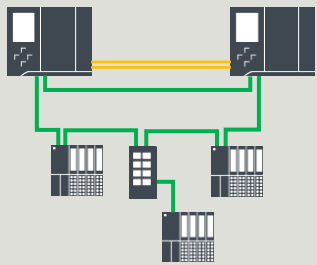
- No new PLC hardware needed
- TIA Portal V18 and Firmware Update to V3.0 enables R1 redundancy in the PLCs



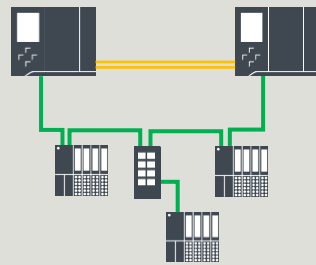
SIMATIC Hardware

Flexible Network Architectures for S7-1500H

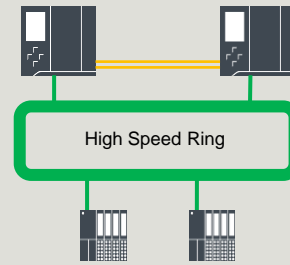
Support of additional network architectures allows an easy integration in existing network structures



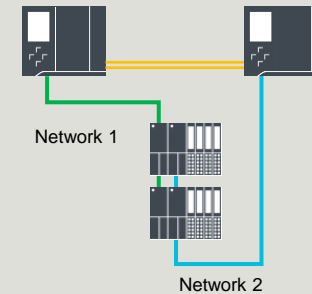
Single MRP Ring



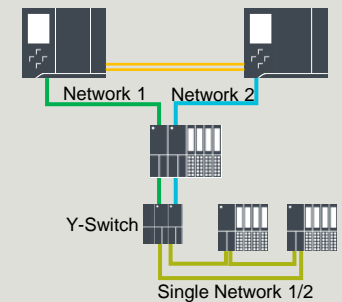
Line Topology



Separated Ring



Line Topology with R1



R1 + Y-Switch

- Media Redundancy with MRP Protocol
- The only supported option for S7-1500H in TIA Portal V15...V17

- Direct PN connection between H-controllers is no more needed
- IO Data is synchronized via the “yellow cable”
- Also operation without PN devices is supported

- Connection to existing network structures is now possible
- High speed communication in the ring can be used

- Dual ring architecture with R1 can also be opened to R1 line structure
- Wiring from both sides increases availability in the line structure

- Y-Switch device allows to connect S1 and S2 devices to redundant networks