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## The modular AS-i Master – for every plant concept!

Consistent integration of process signals  
with SIMATIC ET 200SP – also with intelligent  
preprocessing and safety technology

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# AS-i Master and F-CM AS-i Safety in the SIMATIC ET 200SP

## The safe connection between control and field levels

To enable the signals captured by AS-i slaves in the field to be evaluated at a central location by a SIMATIC or SINUMERIK, the “gap” between the field and control level has to be closed.

This task is performed by the CM AS-i Master ST and F-CM AS-i Safety ST modules in the ET 200SP. They very efficiently transmit the standard and safety signals between the AS-i slaves in the field and in the control.

### Extremely powerful and expandable

Using the AS-i modules in the ET 200SP, AS-i networks can quite easily be connected to standard and safety controls. For any plant configuration – from small to large and complex – one, two, three or more AS-i networks can quickly be set up in one station without any great effort or expense. As in a modular kit, the CM AS-i Master ST module is used for standard data, while the F-CM AS-i Safety ST module is added for safety data.

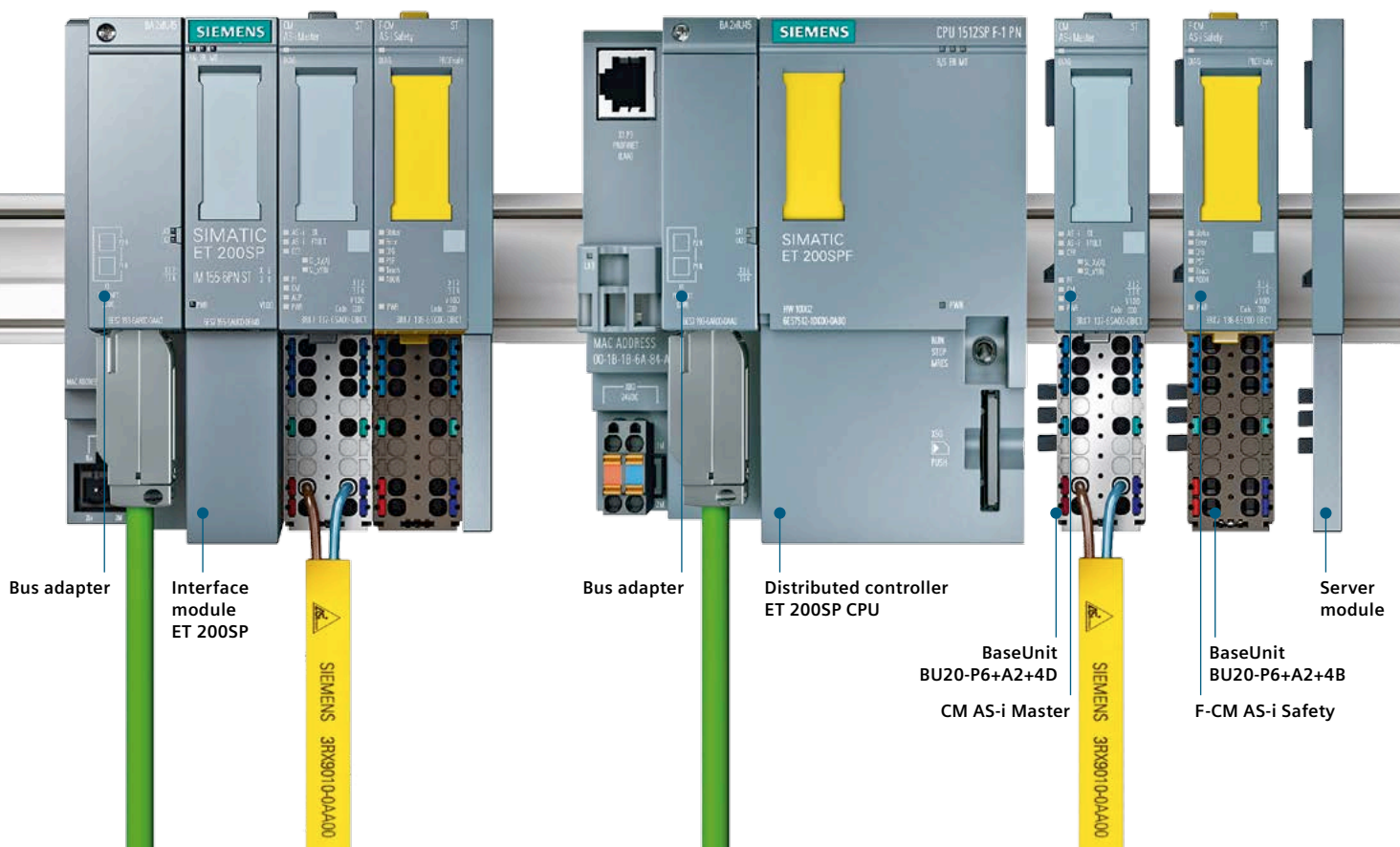
### Safety – for safe operation in every respect

In a distributed network configuration with a PROFINET or PROFIBUS connection, the data is exchanged between the safety CPU and the AS-i networks by means of PROFIsafe in both the input and output directions. The safety signals of the AS-i slaves in the field are transmitted to the controller, where they are evaluated and logically linked. The safety shutdown signals of the controller can also be transmitted back to the AS-i slaves in the field (Configuration 1).

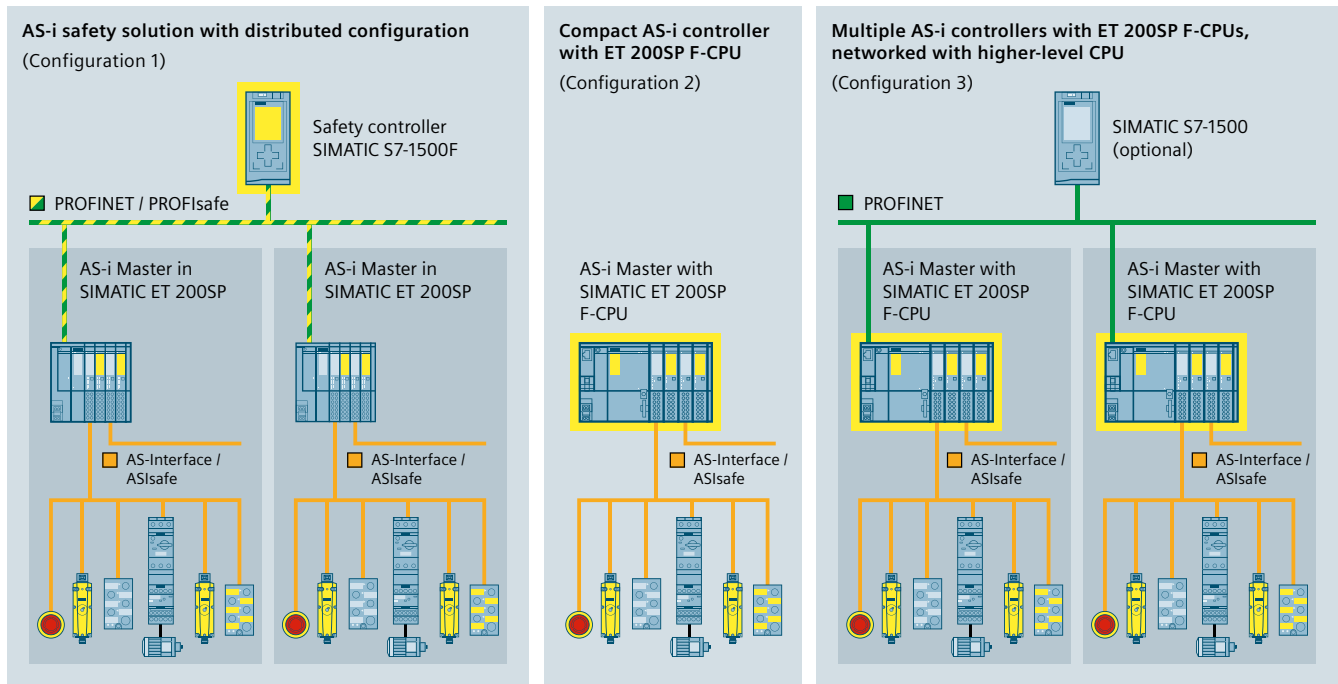
It goes without saying that the safety signals can also be processed directly in the ET 200SP station (Configuration 2). For this purpose, only the PROFINET or PROFIBUS interface module (IM) is replaced by a fail-safe ET 200SP F-CPU. If necessary, the signals that are preprocessed in the ET 200SP can also be forwarded to a higher-level CPU (Configuration 3). This reduces the workload of the higher-level CPU and contributes to more flexible use of machines and plants.

AS-i Master in the SIMATIC ET 200SP

Intelligent AS-i Master Station with ET 200SP CPU



## Flexible safety solutions for your machine



Processing of the safety system

### Easy configuring, perfect engineering and comprehensive diagnostics

With AS-i you benefit from the freedom of cabling. The network topology can be adapted to your machine or plant and the networks are freely scalable.

In a similar way to PROFINET and PROFIBUS, the AS-i networks are configured transparently by dragging and dropping components in the TIA Portal, the intuitive and efficient engineering framework for configuration.

The AS-i Masters in the ET 200SP supply information on the status and diagnosis of all AS-i slaves of the connected AS-i networks. The diagnoses can be called up centrally in the TIA Portal, or at the control cabinet, or in the field by means of HMI Panels or web browsers.



### Overview of data and functions

#### AS-i functions

- AS-i Specification V3.0, AS-i Power24V
- Detection of ground faults and duplicate addressing
- Option handling
- Configuration during normal operation
- 496 DI / 496 DQ per network (CM AS-i Master)
- 31 F-DI / 16 F-DQ (SIL3) per network (F-CM AS-i Safety)

#### Number of AS-i Masters / networks \*)

- IM155-6PN BA: 1x AS-i
- IM155-6PN ST: up to 8x AS-i or 5x ASIsafe
- IM155-6PN HF: up to 43x AS-i or 29x ASIsafe
- IM155-6DP HF: up to 7x AS-i or 5x ASIsafe
- CPU 1510SP-1PN, CPU 1512SP-1PN, CPU 1515SP PC (firmware V1.8): up to 40x AS-i
- F-CPU 1510SPF-1PN, F-CPU 1512SPF-1PN (firmware V1.8): up to 40x AS-i or 26x ASIsafe

#### Engineering

- STEP 7 TIA Portal or STEP 7 V5.5

#### Diagnostics

- TIA Portal, web browser, HMI

\*) Basis for calculation: 32 bytes of IO data per AS-i Master

## Article numbers

### PROFINET interface module

IM155-6PN BA incl. 2x RJ45	6ES7155-6AR00-0AN0
IM155-6PN ST	6ES7155-6AU00-0BN0
IM155-6PN ST incl. bus adapter 2x RJ45	6ES7155-6AA00-0BN0
IM155-6PN HF	6ES7155-6AU00-0CN0

### Variable bus adapter for PROFINET

2x RJ45	6ES7193-6AR00-0AA0
2x FC (FastConnect)	6ES7193-6AF00-0AA0
2x SCRJ (FiberOptic)	6ES7193-6AP00-0AA0

### PROFIBUS interface module

IM155-6DP HF	6ES7155-6BA00-0CN0
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### Distributed controller ET 200SP CPU

CPU 1510SP-1PN	6ES7510-1DJ01-0AB0
CPU 1512SP-1PN	6ES7512-1DK01-0AB0
CPU 1510SPF-1PN	6ES7510-1SJ01-0AB0
CPU 1512SPF-1PN	6ES7512-1SK01-0AB0

### AS-Interface

CM AS-i Master	3RK7137-6SA00-0BC1
F-CM AS-i Safety	3RK7136-6SC00-0BC1
BaseUnit BU20-P6+A2+4D for CM AS-i Master	6ES7193-6BP20-0DC0
BaseUnit BU20-P6+A2+4B for F-CM AS-i Safety	6ES7193-6BP20-0BC1

## The advantages

### Extremely powerful

- Simple PROFIsafe connection of AS-i networks with PROFINET and PROFIBUS, as well as applications with a distributed controller (ET 200SP CPU)
- Fast configuration of single and multiple networks, incl. ASIsafe, for small to complex plants
- Design of flexible plant concepts for machines with basic and special equipment (option handling)

### Simply safe

- Consistent integration of fail-safe AS-i networks into SIMATIC and SINUMERIK
- Transparent exchange of standard data and safety data in both directions
- Scalable: from limited safety installations up to the networking of autonomous, intelligent AS-i safety islands

### Easy engineering and diagnosis

- Central configuration of the standard and safety functions in SIMATIC and SINUMERIK using STEP 7
- Short machine commissioning time, efficient documentation
- Detailed diagnostics options by means of web browser, HMI or TIA Portal
- High-speed fault analysis, short downtimes, high level of plant availability

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## Find out in detail

- **how easily SIMATIC controllers can be integrated into AS-i networks**
  - **what advantages are offered by centralized engineering**
  - **how central diagnostics works**
- [www.siemens.com/as-interface](http://www.siemens.com/as-interface)