Interface modules with fail-safe CPU SIMATIC IM 151-8 F PN/DP CPU

Selection and ordering data

	Article No.
IM 151-8F PN/DP CPU interface module (256 K) Including termination module	**6ES7151-8FB01-0AB0**
SIPLUS IM 151-8F PN/DP CPU interface module (256 K) As above, but suitable for extended temperature range and exposure For configuring a fail-safe automation system, including termination module	**6AG1151-8FB01-2AB0**
Distributed Safety V5.4 programming tool Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 V5.3 SP3 and higher	
Floating license	**6ES7833-1FC02-0YA5**
Floating license for 1 user, license key download without software and documentation [1]; email address required for delivery.	**6ES7833-1FC02-0YH5**
Distributed Safety Upgrade From V5.x to V5.4; Floating license for 1 user	**6ES7833-1FC02-0YE5**
STEP 7 Safety Advanced V13 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, S7-1500F, WinAC RTX F, ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 Professional V13 SP1	
• Floating license for 1 user	**6ES7833-1FA13-0YA5**
• Floating license for 1 user, license key download without software and documentation [1]; email address required for delivery	**6ES7833-1FA13-0YH5**
STEP 7 Safety Advanced Upgrade Upgrade from STEP 7 Safety Advanced V11 to STEP 7 ' Safety Advanced V13. Floating License for one User, Software and documentation on CD	**6ES7833-1FA13-0YE5**
Distributed Safety V5.4 SP5 to Safety Advanced V13 Combo. Combo License for parallel use Distributed Safety V5.4 and STEP 7 Safety Advanced V13. Software and documentation on CD	**6ES7833-1FA13-0YF5**
Accessories	
MMC 64 KB [2] for program backup	**6ES7953-8LF20-0AA0**
MMC 128 KB [2] for program backup	**6ES7953-8LG20-0AA0**
MMC 512 KB [2] for program backup	**6ES7953-8LJ30-0AA0**
MMC 2 MB [2] for program backup and/or firmware update	**6ES7953-8LL31-0AA0**
MMC 4 MB [2] for program backup	**6ES7953-8LM20-0AA0**
MMC 8 MB [2] for program backup	**6ES7953-8LP20-0AA0**
External prommer e.g. for MMC with USB interface	**6ES7792-0AA00-0XA0**
PG with integrated MMC interface	On request
Label sheets DIN A4 (10 pieces) Each sheet contains 60 labeling strips for peripheral modules and 20 labeling strips for interface modules	
• petrol	**6ES7193-4BH00-0AA0**
• red	**6ES7193-4BD00-0AA0**
• yellow	**6ES7193-4BB00-0AA0**
• light beige	**6ES7193-4BA00-0AA0**
ET 200S distributed I/O system manuals are available on the Internet as PDF files: www.siemens.com/simatic-docu	
Termination module as spare part for ET 200S	**6ES7193-4JA00-0AA0**
Power supply connector Spare part; for connecting the 24 V DC supply voltage	
• with push-in terminals	**6ES7193-4JB00-0AA0**
SIMATIC S5, 35 mm DIN rail	
• Length: 483 mm for 19" cabinets	**6ES5710-8MA11**
• Length: 530 mm for 600 mm cabinets	**6ES5710-8MA21**
• Length: 830 mm for 900 mm cabinets	**6ES5710-8MA31**
• Length: 2 m	**6ES5710-8MA41**
Industrial Ethernet FC RJ45 Plug 90 RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 90° cable outlet	
• 1 unit	**6GK1901-1BB20-2AA0**
• 10 units	**6GK1901-1BB20-2AB0**
• 50 units	**6GK1901-1BB20-2AE0**
Industrial Ethernet FastConnect installation cables	
• FastConnect standard cable	**6XV1840-2AH10**
• FastConnect trailing cable	**6XV1840-3AH10**
• FastConnect marine cable	**6XV1840-4AH10**
Industrial Ethernet FastConnect stripping tool	**6GK1901-1GA00**

[1] For up-to-date information and download availability, see: www.siemens.com/tia-online-software-delivery

[2] Micro Memory Card required for operation of CPU.

[3] For up-to-date information and download availability, see: www.siemens.com/tia-online-software-delivery

Overview

PROFIBUS DP master interface module for IM 151-7(F) CPU/ IM 151-8(F) PN/DP CPU interface modules

- Integrated 12 Mbit/s PROFIBUS DP master interface in copper design
- Facilitates parallel operation of two PROFIBUS DP interfaces on one IM 151-7 (F-)CPU
- Enables operation of a PROFIBUS DP interface on an IM 151-8(F) PN/DP CPU
- Increases the availability of plants and machinery
- Functionality corresponds to the interface of an S7-300 CPU 314-2 DP configured as DP master

Programming is with STEP7 from Version V5.2 with Service Pack 1.

SIPLUS version

A SIPLUS version of this module is also available.
See page 3/108.

Application

The master interface module adds a DP master interface to the IM 151-7(F-)CPU / IM 151-8(F) PN/DP CPU. A lower-level PROFIBUS DP line can thus be established. This results in the following advantages:

- Offloading of the central controller by means of distributed preprocessing
- IM 151-7 (F-)CPU / IM 151-8(F) PN/DP CPU is possible as DP master in stand-alone mode
- Use of the CPU in hierarchical networks, e.g. with IE/PB Link also on Ethernet (CBA, etc.)

Design

The master interface module has a 9-pin Sub-D connector (socket) for connecting to PROFIBUS DP.

Installation information:
The master interface module is to be plugged in to the right of the IM 151-7 (F-) CPU / IM 151-8(F) PN/DP CPU.

Function

The master interface module adds a DP master interface to the IM 151-7(F-)CPU / IM 151-8(F) PN/DP CPU. The functionality and quantity structures are defined by the IM 151-7 (F-)CPU / IM 151-8(F) PN/DP CPU.

The master interface module also enables connection of a programming device to its interface. This makes routing to bus nodes possible on the integral CPU interface possible if it is operated in active mode.

Technical specifications

	6ES7138-4HA00-0AB0
Hardware configuration	
Number of modules per CPU	1
Dimensions	
Width x height x depth (mm)	35 x 119.5 x 75
Weight, approx.	100 g

Selection and ordering data

	Article No.
Master interface module for IM 151-7F-CPU / IM 151-8F PN/DP CPU interface modules	**6ES7138-4HA00-0AB0**
Accessories	
PROFIBUS DP bus connector RS 485	
With 90° cable outlet, max. transfer rate 12 Mbit/s	
• without PG interface	**6ES7972-0BA12-0XA0**
• with PG interface	**6ES7972-0BB12-0XA0**
With 90° cable outlet for FastConnect connection system, max. transfer rate 12 Mbit/s	
• without PG interface, 1 unit	**6ES7972-0BA52-0XA0**
• without PG interface, 100 units	**6ES7972-0BA52-0XB0**
• with PG interface, 1 unit	**6ES7972-0BB52-0XA0**
• with PG interface, 100 units	**6ES7972-0BB52-0XB0**
PROFIBUS FastConnect bus cable	**6XV1830-0EH10**
Standard type with special design for quick mounting, 2-core, shielded, sold by the meter, max. delivery unit 1000 m, minimum ordering quantity 20 m	
PROFIBUS bus components	See IK PI, CA 01 catalogs
For establishing MPI/PROFIBUS communication	
Label sheets DIN A4 (10 pieces)	
Each sheet contains 60 labeling strips for peripheral modules and 20 labeling strips for interface modules	
• petrol	**6ES7193-4BH00-0AA0**
• red	**6ES7193-4BD00-0AA0**
• yellow	**6ES7193-4BB00-0AA0**
• light beige	**6ES7193-4BA00-0AA0**
ET 200S distributed I/O system manuals	
are available on the Internet as PDF files:	
www.siemens.com/simatic-doku	

More information

Brochures

Information material for downloading can be found in the Internet:

www.siemens.com/simatic/printmaterial

SIPLUS master interface modules for SIPLUS IM 151 CPU

Overview

PROFIBUS DP master interface module for SIPLUS interface module IM 151-7 (R) CPU / IM 151-8 (F) PN/DP CPU

- Integrated 12 Mbit/s PROFIBUS DP master interface in Cu version
- Allows parallel operation of two PROFIBUS DP interfaces on one IM 151-7 CPU
- Allows operation of one PROFIBUS DP interface with an IM 151-8 (F) PN/DP CPU
- Increase in availability of systems and machines
- Functionality in accordance with a DP master configured interface of an S7-314 CPU

Programming is performed with STEP 7 from version V5.2 with Service Pack 1.

Note:

SIPLUS extreme products are based on Siemens Industry standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

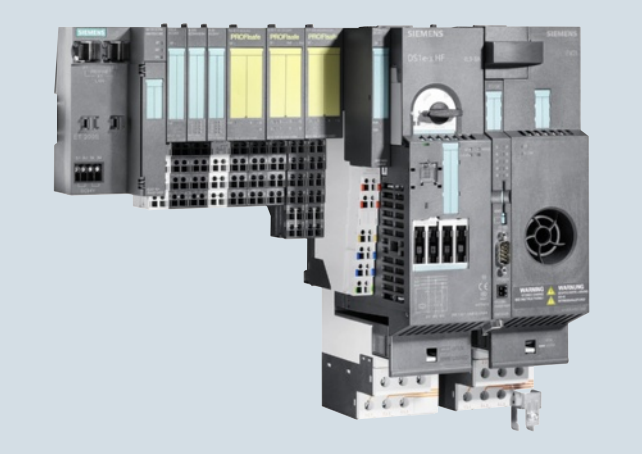
SIPLUS module	**SIPLUS master interface module for SIPLUS IM 151 CPU**
SIPLUS module	**6AG1138-4HA00-7AB0**
based on	**6ES7138-4HA00-0AB0**
Ambient temperature range	-25 °C … +70 °C
Conformal coating	Coating of the printed circuit boards and the electronic components
Technical data	The technical data of the standard product applies except for the ambient conditions.
Ambient conditions	
Relative humidity	100%, condensation/frost permissible. No commissioning if condensation present.
Biologically active substances, compliance with EN 60721-3-3	Class 3B2 mold and fungal spores (excluding fauna). The supplied plug covers must remain in place over the unused interfaces during operation!
Chemically active substances, compliance with EN 60721-3-3	Class 3C4 incl. salt spray in accordance with EN60068-2-52 (degree of severity 3). The supplied plug covers must remain in place over the unused interfaces during operation!
Mechanically active substances, compliance with EN 60721-3-3	Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation!
Air pressure (depending on the highest positive temperature range specified)	1080 ... 795 hPa (-1000 … +2000 m) See ambient temperature range 795 ... 658 hPa (+2000 ... +3500 m) derating 10 K 658 … 540 hPa (+3500 … +5000 m) derating 20 K

For technical documentation on SIPLUS, see:
www.siemens.com/siplus-extreme

Selection and ordering data

	Article No.
SIPLUS Master interface module for SIPLUS IM 151-7F-CPU IM 151-8F PN/DP CPU interface modules (extended temperature range and exposure)	**6AG1138-4HA00-7AB0**
Accessories	See SIMATIC master interface module on page 3/107

Overview



The fail-safe SIMATIC S7 CPUs, plus the fail-safe signal modules of SIMATIC ET 200S / 200pro/ ET 200eco and ET 200M have been specially developed for distributed applications in manufacturing systems. Thanks to the discrete structure of the F I/Os, safety technology is only applied where actually required. The new system replaces conventional electromechanical components, such as:

- Freely programmable safe linking of sensors to actuators;
- Selective safe shutdown of actuators;
- Hybrid configurations of F modules (F stands for fail-safe) and standard modules in a station;
- Single-bus concept, F signals and standard signals are transferred over one bus medium (PROFIBUS DP, PROFINET).

Totally Integrated Automation (TIA)

Safety technology (Safety Integrated) is a component of Totally Integrated Automation resulting in the total integration of safety and standard automation (SIMATIC S7).

Whereas today, standard automation (conventional PLCs) and safety automation (electromechanics) are still separate, these two worlds are growing closer together to form one uniform, integrated overall system.

Siemens can therefore present itself as a complete supplier for automation engineering for which safety technology is part of the standard automation and uniformity exists throughout the complete system.

More information

Brochures

Information material for downloading can be found in the Internet:

www.siemens.com/simatic/printmaterial

PM-E F PROFIsafe F power module

Overview

Fail-safe PM-E F PROFIsafe power modules for safety shutdown of standard digital output modules.

- Up to 2 fail-safe digital outputs onboard (source/sink outputs, up to 2 A, up to SIL3/Cat. 4)
- The standard digital output modules can be shut down up to Cat.3 (EN 954) and SIL 2 (IEC61508) up to 10 A. The following modules can be used down-circuit of the power modules.
  - 2DO / 0.5 A ST 6ES7132-4BB01-0AA0
  - 2 DO / 2 A ST 6ES7132-4BB31-0AA0
  - 2 DO / 0.5 A HF 6ES7132-4BB01-0AB0
  - 2 DO / 2 A HF 6ES7132-4BB31-0AB0
  - 4 DO / 0.5 A ST 6ES7132-4BD01-0AA0
  - 4 DO / 2 A ST 6ES7132-4BD31-0AA0

The modules support PROFIsafe, both in PROFIBUS, and in PROFINET configurations. They can be used with all fail-safe SIMATIC S7-CPUs.

Application

Fail-safe PM-E F PROFIsafe power modules for safety shutdown of standard digital output modules.

The standard digital output modules are supplied over PM-E PROFIsafe and can be shut down with fail-safety using relay contacts according to Cat. 3/ SIL2.

The PM-E F pm PROFIsafe power module can be used for loads configured without a ground connection and has 2 additional fail-safe digital outputs onboard. These are source/sink outputs and can be used for safety circuits up to Cat. 4/ SIL 3.

The PM-E F pp PROFIsafe power modules can be used for loads that are connected to ground, e.g. for actuators that have to be connected to a central mass.

The modules can be operated both down-circuit of the IM151-7 F-CPU in a central configuration and down-circuit of the IM 151 High Feature and IM151-3 PROFINET High Feature in a distributed configuration.

Design

PM-E F PROFIsafe power modules are plugged into the TM-P terminal modules provided.

The first module adjacent to the IM 151 must be a power module.

Technical specifications

	6ES7138-4CF03-0AB0	6ES7138-4CF42-0AB0
Supply voltage		
Load voltage L+		
• Rated value (DC)	24 V	24 V
• Reverse polarity protection	No	No
Input current		
from load voltage L+ (without load), max.	typ. 100 mA	typ. 100 mA
from backplane bus 24 V DC, max.	28 mA	28 mA
Current carrying capacity		
Current carrying capacity up to 30 °C, max.		10 A
Current carrying capacity up to 40 °C, max.	10 A	8 A
Current carrying capacity up to 60 °C, max.	6 A	7 A
Power losses		
Power loss, typ.	4 W	4 W
Address area		
Address space per module		
• without packing	5 byte; Input and output in each case	5 byte; Input and output in each case
Digital inputs		
Cable length		
• Cable length, shielded, max.	200 m	200 m
• Cable length unshielded, max.	200 m	200 m

	6ES7138-4CF03-0AB0	6ES7138-4CF42-0AB0
Digital outputs		
Number of digital outputs	2	1
Product function	Yes	No
• Response threshold, typ.	Response threshold (short-circuit): 5 to 12 A; response threshold (external short-circuit to ground): 5 to 12 A; response threshold (external short-circuit to P potential): 25 to 45 A	
Limitation of inductive shutdown voltage to	L+ (-2 x 47 V)	
Controlling a digital input	No	Yes
Switching capacity of the outputs		
• Lamp load, max.	10 W	100 W
Load resistance range		
• lower limit	12 Ω	
• upper limit	1 kΩ	
Output voltage		
• for signal "1", min.	L+ (-2,0 V), current sourcing switch: L+ (-1,5 V), voltage drop on current sinking switch: max. 0.5 V	
Output current		
• for signal "1" rated value	2 A	
• for signal "1" permissible range for 0 to 60 °C, min.	20 mA	
• for signal "1" permissible range for 0 to 60 °C, max.	2.4 A	
• for signal "0" residual current, max.	0.5 mA	
Parallel switching of 2 outputs		
for increased power	No	
for redundant control of a load	No	
Switching frequency		
with resistive load, max.	30 Hz	2 Hz
with inductive load, max.	0.1 Hz	0.1 Hz; with inductive load to IEC 947-5-1, 13 DC /15 AC
on lamp load, max.	10 Hz	2 Hz
Aggregate current of outputs (per group)		
horizontal installation		
- up to 40 °C, max.	10 A	10 A
- up to 55 °C, max.	7 A	8 A
- up to 60 °C, max.	6 A	7 A
vertical installation		
- up to 40 °C, max.	6 A	8 A
Relay outputs		
• Switching capacity of contacts		
- at ohmic load, up to 50 °C, max.	10 A	10 A
Cable length		
• Cable length, shielded, max.	200 m	
• Cable length unshielded, max.	200 m	
Interrupts/diagnostics/status information		
Diagnostic messages		
• Diagnostic functions	Yes	Yes
• Diagnostic information readable	Yes	Yes
• Diagnostics	Yes	
• Wire break	Yes	No
• Short circuit	Yes	Yes
• Missing load voltage	Yes	Yes

PM-E F PROFIsafe F power module

	6ES7138-4CF03-0AB0	6ES7138-4CF42-0AB0
Diagnostics indication LED		
• Rated load voltage PWR (green)	Yes	Yes
• Group error SF (red)	Yes	Yes
• Status indicator digital output (green)	Yes	Yes
Galvanic isolation		
Galvanic isolation digital outputs		
• between the channels	No	No
• between the channels and the backplane bus	Yes	Yes
• between the channels and the load voltage L+	No	No
Isolation		
Isolation checked with	500 V DC	500 V DC
Tested with		
• Channels against backplane bus and load voltage L+	500 V DC	500 V DC
Standards, approvals, certificates		
Highest safety class achievable in safety mode		
• acc. to EN 954	4	4
• acc. to IEC 61508	Up to SIL 3	With Std-DO: max. SIL 2, without Std-DO: max. SIL 3 depending on configuration
Dimensions		
Width	30 mm	30 mm
Height	81 mm	81 mm
Depth	52 mm	52 mm
Weight, approx.	88 g	80 g

Selection and ordering data

	Article No.
Power module PM-E F pm PROFIsafe, 24 V DC For safe shutdown of digital output modules	**6ES7138-4CF03-0AB0**
Power module PM-E F pp PROFIsafe, 24 V DC For safe shutdown of digital output modules	**6ES7138-4CF42-0AB0**
Accessories	
IM 151-1 High Feature interface module For ET 200S; transfer rate up to 12 Mbit/s; data volumes 244 bytes each for I/O, up to 63 modules can be connected; connection of PROFIsafe modules, isochronous mode; bus connection via 9-pin Sub-D incl. terminating module	**6ES7151-1BA02-0AB0**
IM 151-3 PN HF interface module For ET 200S; transfer rate up to 100 Mbit/s; max. 63 I/O modules up to 2 m wide can be connected; 2 x bus connection via RJ45 connector, incl. terminating module	**6ES7151-3BA23-0AB0**
IM 151-3 PN FO interface module For ET 200S; 2 PROFINET FO interfaces, integrated 2-port switch, max. 63 I/O modules up to 2 m wide can be connected, incl. terminating module	**6ES7151-3BB23-0AB0**
Terminal modules for power modules	
TM-P30S44-A0 Ordering unit 1 item 7 x 2 terminals, terminal access to AUX1 bus, AUX1 interrupted to the left, screw-type terminals for PM-E F PROFIsafe	**6ES7193-4CK20-0AA0**
TM-P30C44-A0 Ordering unit 1 item 7 x 2 terminals, terminal access to AUX1 bus, AUX1 interrupted to the left, spring-loaded terminals for PM-E F PROFIsafe	**6ES7193-4CK30-0AA0**
S7 Distributed Safety programming tool V5.4 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 V5.3 SP3 and higher	
• Floating license	**6ES7833-1FC02-0YA5**
• Floating license for 1 user, license key download without software and documentation[1]; email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety Upgrade From V5.x to V5.4; Floating license for 1 user	**6ES7833-1FC02-0YE5**
STEP 7 Safety Advanced V13 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, S7-1500F, WinAC RTX F, ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 Professional V13 SP1	
• Floating license for 1 user	**6ES7833-1FA13-0YA5**
• Floating license for 1 user, license key download without software or documentation[1]; email address required for delivery	**6ES7833-1FA13-0YH5**
STEP 7 Safety Advanced Upgrade Upgrade from STEP 7 Safety Advanced V11 to STEP 7 Safety Advanced V13. Floating License for one User, Software and Docu on CD	**6ES7833-1FA13-0YE5**
Distributed Safety V5.4 SP5 to Safety Advanced V13 Combo. Combo License for parallel use Distributed Safety V5.4 and STEP 7 Safety Advanced V13. Software and docu on CD	**6ES7833-1FA13-0YF5**
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SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**

[1] For up-to-date information and download availability, see: www.siemens.com/tia-online-software-delivery

3

Overview

This module provides digital inputs/outputs for the fail-safe SIMATIC S7 systems

Fail-safe digital input module:

- For fail-safe reading of sensor information (1 or 2 channels)
- Provides integral discrepancy evaluation for 2-out-of-2 signals
- 2 internal sensor supplies (incl. test function) onboard
- Certified up to Cat. 4 (EN954-1), SIL 3 (IEC 61508), PL e (ISO 13849)

Fail-safe digital output module

- Fail-safe 2-channel activation (sink/source output) by actuators
- Actuators can be driven by up to 2 A
- Certified up to Cat. 4 (EN954-1), SIL 3 (IEC 61508), PL e (ISO 13849)

Fail-safe digital hybrid module

- 4 fail-safe inputs/3 fail-safe outputs
- Certified up to Cat. 3 (EN954-1), SIL 2 (IEC 61508), PL d (ISO 13849)

The modules support PROFIsafe, both in PROFIBUS, and in PROFINET configurations.
They can be used with all fail-safe SIMATIC S7 CPUs.

The module also supports: I&M Data, international Diagnostic buffer, FW-Update.

Application

The fail-safe modules of ET 200S can be used to implement the safety-related application requirements as an integral part of the overall automation. The safety functions required for fail-safe operation are integrated in the modules. The modules can be used for safety circuits up to Cat. 4/ SIL 3.

Communication to fail-safe SIMATIC S7 CPUs is performed by means of PROFIsafe.

The modules can be operated both down-circuit of the IM151-7 F-CPU in a central configuration and down-circuit of the IM 151 High Feature and IM151-3 PROFINET High Feature in a distributed configuration.

A standard power module is required to supply the modules.

Design

Digital input/output modules have the following features:

Compact design

The rugged plastic casing contains

- Green LEDs to display the signal states at the inputs/outputs
- Plug option for the front connector, protected behind the front door
- Labeling strip on the front door (yellow for fail-safe modules).

Simpleconnection

The modules are mounted on the standard rail and connected to neighboring modules via the bus connector. There are no slot rules and the addresses of the inputs are assigned via the slot.

By using them in the distributed I/O station ET 200M in combination with active bus modules, the modules can be replaced during operation with the equipment live. The remaining modules continue to operate.

User-friendly wiring

The modules are wired up via a front connector. When it is plugged in for the first time, a coding device latches in the connector so that the connector will only fit onto modules of this type. When the module is replaced, the fully wired front connector can be plugged into the new module of the same type.

In the case of fail-safe input modules, the necessary encoder power supply (test outputs) are provided. These test outputs can be activated via parameterization.

Technical specifications

	6ES7138-4FA05-0AB0
Supply voltage	24 V DC
Permissible range (DC)	20.4 V ... 28.8 V
Reverse polarity protection	No
Encoder supply	
Number of outputs	2
Output voltage	min. L+ (-1.5 V)
Output current, rated value	300 mA
Output current, permissible range	0 to 300 mA
Output current	
• Short-circuit protection	Yes; Electronic (response threshold 0.7 A to 1.8 A)
Power losses	
Power loss, typ.	4 W
Address area	
Occupied address area	
• Inputs	6 byte
• Outputs	4 byte
Digital inputs	
Number of digital inputs	8; 8 single channel, 4 two-channel
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	8
Input voltage	
• Rated value, DC	24 V
• for signal "0"	-30 to +5 V
• for signal "1"	15 to 30 V
Input current	
• for signal "1", typ.	3.7 mA

	6ES7138-4FA05-0AB0
Input delay (for rated value of input voltage)	
• for standard inputs	
- Parameterizable	Yes
- at "0" to "1", min.	0.3 ms
- at "0" to "1", max.	17 ms
- at "1" to "0", min.	0.3 ms
- at "1" to "0", max.	17 ms
Cable length	
• Cable length, shielded, max.	200 m
• Cable length unshielded, max.	200 m
Encoder	
Connectable encoders	
• 2-wire sensor	No
Interrupts/diagnostics/status information	
Alarms	
• Diagnostic alarm	Yes
Diagnostic messages	
• Diagnostic functions	Yes
• Diagnostic information readable	Yes
• Short circuit	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
• Status indicator digital input (green)	Yes
Galvanic isolation	
Galvanic isolation digital inputs	
• between the channels	No
• between the channels and the backplane bus	Yes
• between the channels and the load voltage L+	No
Permissible potential difference	
between M internally and the inputs	75 V DC / 60 V AC
Isolation	
Isolation checked with	500 V DC
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
• acc. to EN 954	4
• acc. to IEC 61508	SIL 2 (single-channel), SIL 3 (two-channel)
Dimensions	
Width	30 mm
Height	81 mm
Depth	52 mm
Weight, approx.	78 g

	6ES7138-4FB04-0AB0
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
• Reverse polarity protection	No
Input current	
from load voltage L+ (without load), max.	typ. 100 mA
from backplane bus 3.3 V DC, max.	28 mA
Power losses	
Power loss, typ.	3.5 W
Digital outputs	
Number of digital outputs	4
Product function	Yes
Limitation of inductive shutdown voltage to	Typ. (2L+) -47 V
Controlling a digital input	No
Switching capacity of the outputs	
• Lamp load, max.	10 W
Load resistance range	
• lower limit	12 Ω
• upper limit	1 kΩ
Output voltage	
• for signal "1", min.	L+ (-2,0 V), current sourcing switch: L+ (-1,5 V), voltage drop on current sinking switch: max. 0.5 V
Output current	
• for signal "1" rated value	2 A
• for signal "1" permissible range for 0 to 60 °C, min.	20 mA
• for signal "1" permissible range for 0 to 60 °C, max.	2.4 A
• for signal "0" residual current, max.	0.5 mA; Current-sourcing: max. 0.5 mA; Current sinking: max. 4 mA
Parallel switching of 2 outputs	
• for increased power	No
• for redundant control of a load	No
Switching frequency	
• with resistive load, max.	30 Hz
• with inductive load, max.	0.1 Hz
• on lamp load, max.	10 Hz
Aggregate current of outputs (per group)	
• horizontal installation	
- up to 40 °C, max.	6 A
- up to 55 °C, max.	5 A
- up to 60 °C, max.	4 A
• vertical installation	
- up to 40 °C, max.	4 A
Cable length	
• Cable length, shielded, max.	200 m
• Cable length unshielded, max.	200 m
Interrupts/diagnostics/status information	
• Diagnostic functions	Yes
• Wire break	Yes
• Short circuit	Yes

F electronic modules

	6ES7138-4FB04-0AB0
Diagnostics indication LED	
• Group error SF (red)	Yes
• Status indicator digital output (green)	Yes
Galvanic isolation	
Galvanic isolation digital outputs	
• between the channels	No
• between the channels and the backplane bus	Yes
• between the channels and the load voltage L+	No
Isolation	
Isolation checked with	500 V DC
• Channels against backplane bus and load voltage L+ tested with	1500 V AC
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
• acc. to EN 954/IEC 61508	4/SIL 3
Dimensions	
Width x Height x Depth (mm)	30 x 81 x 52
Weight, approx.	85 g

3

Selection and ordering data

	Article No.
Electronic module 4/8 F-DI PROFIsafe 24 V DC 30 mm construction width, up to PL e according to ISO 13849.1	**6ES7138-4FA04-0AB0**
Electronic module 4 F-DO PROFIsafe 24 V DC/2A 30 mm construction width, up to PL e according to ISO 13849.1	**6ES7138-4FB03-0AB0**
Electronic module 4 F-DI / 3 F-DO PROFIsafe 24 V DC/2 A 30 mm construction width, up to PL e according to ISO 13849.1 / SIL 2 (IEC 62061)	**6ES7138-4FC01-0AB0**
Accessories	
Terminal modules for electronic modules	See F terminal modules, page 3/120
IM 151-1 High Feature interface module For ET 200S; transmission rate up to 12 Mbit/s; max. 63 modules can be connected, with isochronous mode, bus connection via 9-pin Sub-D connector incl. terminating module	**6ES7151-1BA02-0AB0**
IM 151-3 PN HF interface module For ET 200S; transfer rate up to 100 Mbit/s; max. 63 I/O modules up to 2 m wide can be connected; 2 x bus connection via RJ45 connector, incl. terminating module	**6ES7151-3BA23-0AB0**
IM 151-3 PN FO interface module For ET 200S; 2 PROFINET FO interfaces, integrated 2-port switch, max. 63 I/O modules up to 2 m wide can be connected, incl. terminating module	**6ES7151-3BB23-0AB0**
S7 Distributed Safety programming tool V5.4 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 V5.3 SP3 and higher	
• Floating license	**6ES7833-1FC02-0YA5**
• Floating license for 1 user, license key download without software and documentation[1]; email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety Upgrade From V5.x to V5.4; Floating license for 1 user	**6ES7833-1FC02-0YE5**
STEP 7 Safety Advanced V13 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, S7-1500F, WinAC RTX F, ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 Professional V13 SP1	
• Floating license for 1 user	**6ES7833-1FA13-0YA5**
• Floating license for 1 user, license key download without software or documentation[1]; email address required for delivery	**6ES7833-1FA13-0YH5**
STEP 7 Safety Advanced Upgrade Upgrade from STEP 7 Safety Advanced V11 to STEP 7 Safety Advanced V13. Floating License for one User, Software and Docu on CD	**6ES7833-1FA13-0YE5**
Distributed Safety V5.4 SP5 to Safety Advanced V13 Combo. Combo License for parallel use Distributed Safety V5.4 and STEP 7 Safety Advanced V13. Software and docu on CD	**6ES7833-1FA13-0YF5**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection – Update service for 1 year Scope of delivery: Current DVD "S7 Manual Collection" and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For up-to-date information and download availability, see: www.siemens.com/tia-online-software-delivery

Overview

The digital electronics module 1 F-RO 24 V DC/5A 24 to 230 V AC/5A has the following characteristics

- 1 relay output (2 NO contacts)
- Output current 5 A.
- Rated load voltage 24 V DC and 24 to 230 V AC
- The control circuit of the two safety relays must be routed from the outside to the respective terminals.

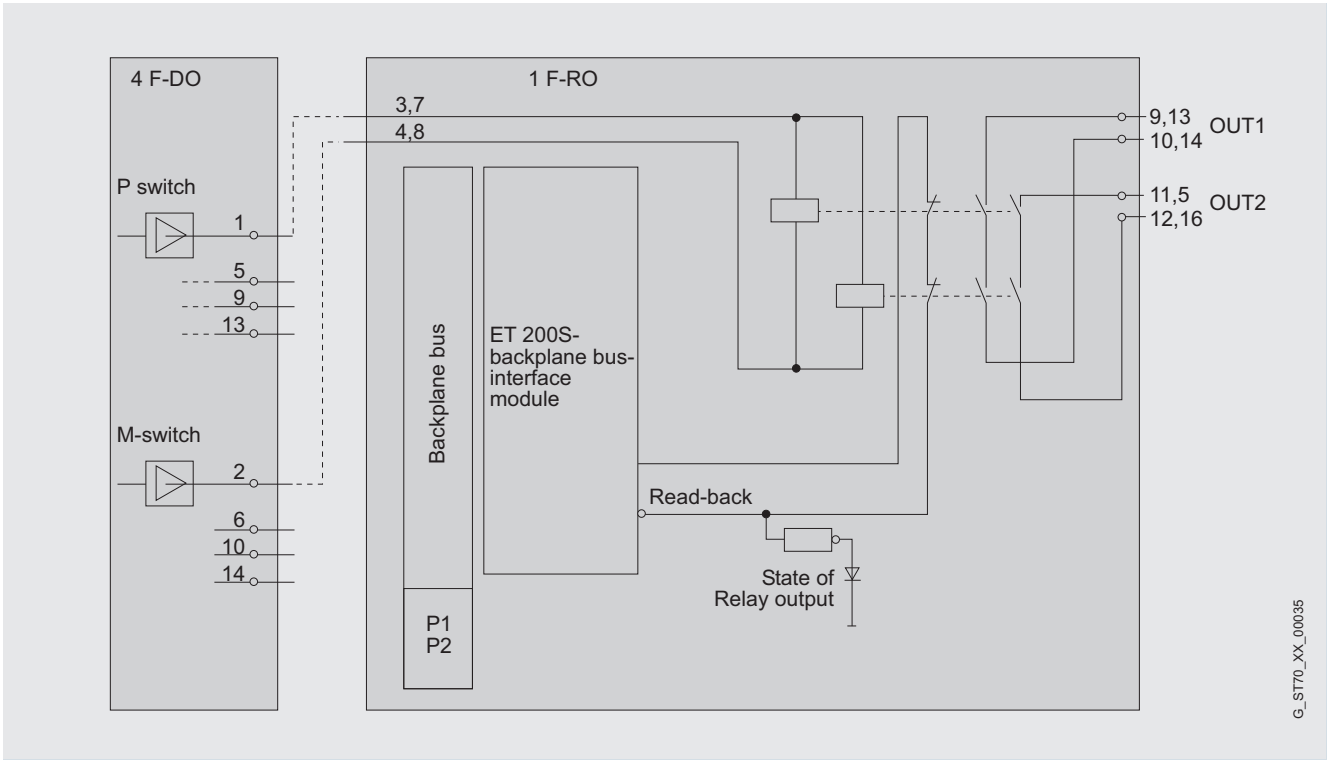
The attainable safety integrity level is SIL3 (IEC61508), when the control of the F-RO module is implemented via a fail-safe output (e.g. EM 4F-DO 24 V DC/2A PROFIsafe).

Application

The 1 F-RO module can be used in multiple ways, e.g.

- For switching of external voltages
- When floating signals are needed
- For controller enables
- When higher switching capacities (> 2 A) are needed

Design



The block diagram shows the control via 4F-DO 24 V DC/2 A PROFIsafe (6ES7138-4FB02-0AB0). The control circuit must be routed to the terminals 3, 4 or 7, 8. One channel of the F-DO can also be used for control of multiple F-RO modules (group shut-down).

Technical specifications

	6ES7138-4FR00-0AA0
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V; Supply via fail-safe output, e.g. of an F-DO
• Rated value (AC)	24 V ... 230 V
Input current	
from load voltage L+ (without load), max.	100 mA; from control voltage
from backplane bus 3.3 V DC, max.	10 mA
Power losses	
Power loss, typ.	2.1 W
Address area	
Address space per module	
• with packing	2 bit
• without packing	1 byte
Digital outputs	
Number of digital outputs	1
Product function	No
Controlling a digital input	Yes
Output current	
• for signal "1" rated value	5 A
• for signal "1" minimum load current	5 mA
Switching frequency	
• with resistive load, max.	2 Hz
• with inductive load, max.	0.1 Hz
Aggregate current of outputs (per group)	
• horizontal installation	
- up to 40 °C, max.	8 A
- up to 55 °C, max.	6 A; At 50 °C
- up to 60 °C, max.	5 A; up to max. 24.8 V
• vertical installation	
- up to 40 °C, max.	6 A

	6ES7138-4FR00-0AA0
Relay outputs	
• Switching capacity of contacts	
- Thermal continuous current, max.	5 A
Cable length	
• Cable length, shielded, max.	200 m
• Cable length unshielded, max.	200 m
Interrupts/diagnostics/status information	
Diagnostics indication LED	
• Status indicator digital output (green)	Yes
Galvanic isolation	
Galvanic isolation digital outputs	
• between the channels	Yes
• between the channels and the backplane bus	Yes
• between the channels and the load voltage L+	Yes; between channels and control voltage
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
• acc. to IEC 61508	Up to SIL 3
Dimensions	
Width	30 mm
Height	81 mm
Depth	52 mm
Weight, approx.	90 g

Selection and ordering data

	Article No.
Electronics module 1 F-RO Relay output (2 NO contacts), Output current 5 A, load voltage 24 V DC and AC 24 ... 230 V AC; suitable for category 4/SIL3, provided control is over F-DO.	**6ES7138-4FR00-0AA0**
Accessories	
Terminal modules for electronic modules	See F terminal modules, page 3/120
IM 151-1 High Feature interface module For ET 200S; transmission rate up to 12 Mbit/s; max. 63 modules can be connected, with isochronous mode, bus connection via 9-pin Sub-D connector incl. terminating module	**6ES7151-1BA02-0AB0**
IM 151-3 PN HF interface module For ET 200S; transfer rate up to 100 Mbit/s; max. 63 I/O modules up to 2 m wide can be connected; 2 x bus connection via RJ45 connector, incl. terminating module	**6ES7151-3BA23-0AB0**
IM 151-3 PN FO interface module For ET 200S; 2 PROFINET FO interfaces, integrated 2-port switch, max. 63 I/O modules up to 2 m wide can be connected, incl. terminating module	**6ES7151-3BB23-0AB0**
S7 Distributed Safety programming tool V5.4 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 V5.3 SP3 and higher	
• Floating license	**6ES7833-1FC02-0YA5**
• Floating license for 1 user, license key download without software and documentation[1]; email address required for delivery	**6ES7833-1FC02-0YH5**

	Article No.
S7 Distributed Safety Upgrade From V5.x to V5.4; Floating license for 1 user	**6ES7833-1FC02-0YE5**
STEP 7 Safety Advanced V13 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, S7-1500F, WinAC RTX F, ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 Professional V13 SP1	
• Floating license for 1 user	**6ES7833-1FA13-0YA5**
• Floating license for 1 user, license key download without software or documentation[1]; email address required for delivery	**6ES7833-1FA13-0YH5**
STEP 7 Safety Advanced Upgrade Upgrade from STEP 7 Safety Advanced V11 to STEP 7 Safety Advanced V13. Floating License for one User, Software and documentation on CD.	**6ES7833-1FA13-0YE5**
Distributed Safety V5.4 SP5 to Safety Advanced V13 Combo. Combo License for parallel use Distributed Safety V5.4 and STEP 7 Safety Advanced V13. Software and documentation on CD.	**6ES7833-1FA13-0YF5**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection – Update service for 1 year Scope of delivery: Current DVD "S7 Manual Collection" and the three subsequent updates	**6ES7998-8XC01-8YE2**

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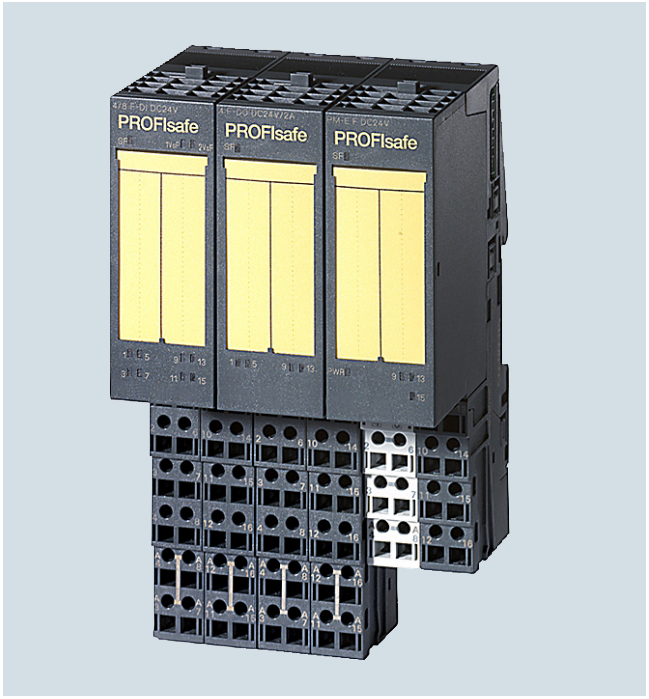
3

F terminal modules

Overview



- Mechanical modules as receptacles for the electronic modules
- For setting up permanent wiring through self-configuring voltage buses
- Keyed connection technology to ensure an enhanced vibration resistance of up to 5 g
- Different versions to accommodate power modules and electronic modules
- Replaceable terminal box (even within the station network)
- Automatic coding of the electronic modules
- Self-shielding of the backplane bus for high data security
- Color coding facility for the terminals and for identifying the slot numbers
- Alternatively available with screw-type or spring-loaded terminals
- For up to 60 % faster process wiring also with FastConnect connection method (av. soon)

Application

Terminal modules are purely mechanical components for configuring the ET 200S. They accommodate the electronic modules and motor starter. The modules are automatically coded.

In the terminal modules, integral, self-configuring voltage buses, communications-capable motor starter and its self-configuring 40 A power bus considerably reduce wiring and control cabinet space requirements. The self-assembling shielding of the backplane bus increases data security.

Rugged construction and molded connections support use in a harsh industrial environment (e.g. vibration resistance up to 5 *g*).

Terminal modules are available in different versions:

- Terminal modules for power modules TM-P:
  To supply load/encoder voltage on two self-configuring potential buses. A third potential bus (AUX1, max. 230 V) can be used user-specifically, e.g. for continuous supply of light barriers or protective conductors. Power modules are plugged onto TP-M modules for the purpose of voltage monitoring and fusing. Power modules are plugged onto TP-M modules for the purpose of voltage monitoring and fusing. TM-P modules can be used as often as required at any location in the ET 200S. This means that the size of a voltage group can be determined individually. The first module behind the IM151 is always a TM-P with a connected power module
- Terminal modules for electronic modules (TM-E);
  TM-E modules accept electronic modules (inputs/outputs, technology modules). The unused signal lines of exclusive OR sensors can also be connected Dedicated double-width terminal modules accept safety-related PROFIsafe electronic modules (F-DI, F-DO and PM E-F).

Design

TM-P

- Connection through screw-type or spring-loaded terminals
- With or without terminal access to AUX1 rail
- With or without interruption of the AUX1 rail
- Light casing color to allow better differentiation

TM-E

- Connection through screw-type or spring-loaded terminals
- With or without terminal access to AUX1 rail
- Connection in 2, 3 or 4-wire technology
- Direct connection of non-equivalent sensors without additional terminal blocks

Selection and ordering data

	Article No.
F terminal modules for power modules	
TM-P15S23-A1	
2 × 3 terminals, terminal access to AUX1 bus, AUX1 interconnected to the left, screw-type terminals	
• Ordering unit 1 item	**6ES7193-4CC20-0AA0**
• Ordering unit 5 items	**6ES7193-4CC20-1AA0**
TM-P15C23-A1	
2 × 3 terminals, terminal access to AUX1 bus, AUX1 interconnected to the left, spring-loaded terminals	
• Ordering unit 1 item	**6ES7193-4CC30-0AA0**
• Ordering unit 5 items	**6ES7193-4CC30-1AA0**
TM-P15S23-A0	
2 × 3 terminals, terminal access to AUX1 bus, AUX1 interrupted to the left, screw-type terminals	
• Ordering unit 1 item	**6ES7193-4CD20-0AA0**
• Ordering unit 5 items	**6ES7193-4CD20-1AA0**
TM-P15C23-A0	
2 × 3 terminals, terminal access to AUX1 bus, AUX1 interrupted to the left, spring-loaded terminals	
• Ordering unit 1 item	**6ES7193-4CD30-0AA0**
• Ordering unit 5 items	**6ES7193-4CD30-1AA0**
TM-P15S22-01	
2 x 2 terminals, no terminal access to AUX1 bus, AUX1 interconnected to the left, screw-type terminals	
• Ordering unit 1 item	**6ES7193-4CE00-0AA0**
• Ordering unit 5 items	**6ES7193-4CE00-1AA0**
TM-P15C22-01	
2 × 2 terminals, no terminal access to AUX1 bus, AUX1 interconnected to the left, spring-loaded terminals	
• Ordering unit 1 item	**6ES7193-4CE10-0AA0**
• Ordering unit 5 items	**6ES7193-4CE10-1AA0**
TM-P30S44-A0	**6ES7193-4CK20-0AA0**
Ordering unit 1 item 7 x 2 terminals, terminal access to AUX1 bus, AUX1 interrupted to the left, screw-type terminals for PM-E F PROFIsafe	
TM-P30C44-A0	**6ES7193-4CK30-0AA0**
Ordering unit 1 item 7 x 2 terminals, terminal access to AUX1 bus, AUX1 interrupted to the left, spring-loaded terminals for PM-E F PROFIsafe	

	Article No.
F terminal modules for electronic modules	
TM-E30S44-01	**6ES7193-4CG20-0AA0**
Ordering unit 1 item 4 x 4 terminals, no terminal access to AUX1 bus, AUX1 interconnected to the left, screw-type terminals	
TM-E30C44-01	**6ES7193-4CG30-0AA0**
Ordering unit 1 item 4 x 4 terminals, no terminal access to AUX1 bus, AUX1 interconnected to the left, spring-loaded terminals	
TM-E30S46-A1	**6ES7193-4CF40-0AA0**
Ordering unit 1 item 4 x 6 terminals, terminal access to AUX1 bus, AUX1 interconnected to the left, screw-type terminals	
TM-E30C46-A1	**6ES7193-4CF50-0AA0**
Ordering unit 1 item 4 x 6 terminals, terminal access to AUX1 bus, AUX1 interconnected to the left, spring-loaded terminals	
Accessories	
Color coding plates	
Ordering unit 200 pieces for TM-P, TM-E	
• white	**6ES7193-4LA20-0AA0**
• yellow	**6ES7193-4LB20-0AA0**
• yellow/green	**6ES7193-4LC20-0AA0**
• red	**6ES7193-4LD20-0AA0**
• blue	**6ES7193-4LF20-0AA0**
• brown	**6ES7193-4LG20-0AA0**
• turquoise	**6ES7193-4LH20-0AA0**
Grounding terminal	**8WA2868**
Ordering unit 1 item For cable cross-sections up to 25 mm^2	
3 × 10 mm busbars	**8WA2842**
Ordering unit 1 item	
Labels, inscribed	
Ordering unit 1 set	
• 200 items for slot numbering (1 to 20) 10 ×	**8WA8861-0AB**
• 200 items for slot numbering (1 to 40) 5 ×	**8WA8861-0AC**
• 200 items for slot numbering (1 to 64) 1 ×, (1 to 68) 2 ×	**8WA8861-0DA**
Labels, blank	
200 items for slot numbering	**8WA8848-2AY**

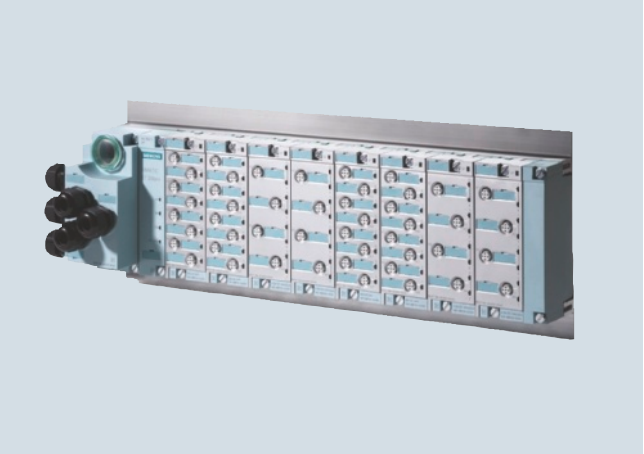
More information

Brochures

Information material for downloading can be found in the Internet: www.siemens.com/simatic/printmaterial

ET 200pro

Overview



- Distributed I/O system with IP65/67 degree of protection for cabinet-free use at the machine.
- Small, multifunctional complete solution: Digital inputs/outputs, fail-safe modules, motor starters up to 5.5 kW, etc.
- Communication over PROFIBUS or PROFINET
- Mixed arrangement of fail-safe and standard modules in the same station
- Freely selectable connection technique: Direct, ECOFAST or M12 7/8"
- Power module for easy implementation of load groups
- Module replacement during operation (hot swapping)
- Easy installation as well as permanent wiring
- Transmission rate for PROFIBUS DP up to 12 Mbit/s
- Extensive diagnostics: Module-specific or channel-specific
- Intelligent motor starters for starting and protection of motors and loads up to 5.5 kW
  - Versions: Direct and reversing starters - Standard and High-Feature
- Fail-safe motor starters
- Fail-safe modules with safety-related signal processing according to PROFIsafe
- Frequency converters
- RFID communication modules
- Pneumatic interface modules

Application

SIMATIC ET 200pro is the new modular I/O system with high degree of protection IP65/66/67 for local, cabinetless applications. ET 200pro distinguishes itself through a small frame size and an innovative installation concept. ET 200pro can be optimized and very flexibly adapted to the requirements of the corresponding automation task with respect to the connection method, required I/Os and fieldbus connection. New features such as the integrated PROFIsafe safety technology, the PROFINET interface and the ability to hotswap modules permit it to be used for a wide range of applications.

With the integrated motor starters, conveyor applications can be implemented optimally, or drives of up to 5.5 kW can be controlled without control cabinet.

Design

The tried and tested separation of module and bus/power connection technology, which has already been used for the ET 200eco, is now also used for the digital and analog expansion modules of the ET 200pro. For the interface module this allows use of the T-functionality for the bus and 24 V power supply, and for the expansion modules it permits pre-wiring of sensor/actuator connections. This permanent wiring allows exactly one electronics module to be hot-swapped in the event of a fault without having to switch off the whole station. It can continue to operate fault-free while the module is being replaced. This ensures very high plant availability. When an electronics component is replaced, the whole I/O wiring can remain on the connecting module and does not have to be marked or removed.

Modules

The modules of the ET 200pro usually have two or three components. Interface and power modules as well as digital and analog expansion modules comprise:

- One bus connector which constitutes the backplane bus of the system
- One electronics module or interface module
- One connecting module

A backplane bus module is required for operation of motor starters.

A station is constructed from:

- One rack
- One interface module for PROFIBUS DP
- One connecting module for the interface module for PROFIBUS DP
  - CM IM DP direct with up to 6 M20 screwed cable glands
  - CM IM DP ECOFAST Cu
  - CM IM DP M12 7/8“

Or optionally

- each with an interface module for PROFINET IO
- a terminal module for the PROFINET IO interface module:
  - CM IM PN M12 7/8“
  - CM IM PN 2 x RJ45
  - CM IM PN 2 x SCRJ FO

Or optionally

- one CPU or one F-CPU
- Max. 16 expansion modules that can be mounted in stations up to 1 m in width

Expansion modules

The following expansion modules are available:

- Digital I/Os
- Analog inputs
- Analog outputs
- Connecting modules IO
  - CM IO 8 x M8 for digital electronic modules
  - CM IO 4 x M12 inverse for digital electronic modules
  - CM IO 4x M12 for digital or analog electronic modules
  - CM IO 4 x M12 P for digital electronic modules
  - CM IO 8x M12 for digital electronic modules
  - CM IO 8x M12 P for digital electronic modules
  - CM IO 8 x M12 D for digital electronic modules
  - CM IO 2 x M12 for digital electronic modules
  - CM IO 1 x M23 for digital electronic modules
- Power module electronics
- Connecting modules for power modules
  - CM PM-E PP (Push Pull)
  - CM PM-E directly with up to 2 M20 screwed cable glands
  - CM PM-E ECOFAST Cu
  - CM PM-E 7/8”

- Fail-safe electronic modules
- Motor starters
- Fail-safe motor starters
- Frequency converters
- RFID communication modules
- Pneumatic interface modules

Racks

Two different racks are available for mounting the ET 200pro:

- Narrow rack
  The narrow rack supports complete pre-assembly on the workbench by means of two mounting flanges outside of the ET 200pro station.

- Compact rack
  When the compact rack is used, the small footprint of the ET 200pro system can be used to best advantage.

Function

The SIMATIC ET 200pro is easily configured with STEP 7. A GSD file is available for interfacing with systems of other manufacturers.

Technical specifications

Fail-safe distributed IO	SIMATIC ET 200pro
General technical specifications	
Electronic modules	• Digital inputs/outputs • Analog inputs • Analog outputs
Motor starter	
Cables and connections	M12 and M8 round connector with standard assignment for actuator/sensor
Transmission rate, max.	12 Mbit/s (PROFIBUS DP), 100 Mbit/s (PROFINET IO)
Supply voltage	24 V DC
Current consumption of one ET 200pro (internal and encoder supply, non-switched voltage), up to 55 °C, max.	≤ 5 A
Current consumption of one ET200pro per infeed (IM, PM, switched voltage, up to 55 °C, max.)	10 A
For overall configuration with looping through (several ET 200pro), up to 55 °C, max.	16 A (with connecting module, directly)
Degree of protection	IP65/66/IP67 for interface, digital and analog modules
Material	Thermoplastic (reinforced with glass fiber)
Ambient conditions	
Temperature	from 0 … 55 °C (-25 °C on request)
Relative humidity	from 5 … 100%
Atmospheric pressure	from 795 … 1080 hPa
Mechanical stress	
• Vibrations	• Vibration test conforming to IEC 60068, Part 2-6 (sinusoidal) • Constant acceleration 5 g, occasionally 10 g for interface, digital and analog modules • 2 g motor starters
• Shock	• Shock test according to IEC 680068 Part 2 - 27, half-sine, 30 *g*, 18 ms duration for interface, digital and analog modules • 15 *g*, 11 ms duration for motor starters
Approvals	UL, CSA or cULus

SIMATIC IM 154-2 DP High Feature

Overview

Interface modules for handling communication between the ET 200pro and the higher-level master over PROFIBUS DP.

Application

The IM 154-2 DP High Feature interface module handles the communication between the ET 200pro and higher-level masters over PROFIBUS DP.

Design

Connecting modules for DP interface modules (must be ordered separately):

- CM IM DP direct
- CM IM DP ECOFAST Cu
- CM IM DP M12 7/8"

All connecting modules contain a PROFIBUS address adjuster that is visible and adjustable from the outside as well as a selectable, segmenting terminating resistor.

The IM 154-2 DP High Feature interface module must be implemented in PROFIsafe applications.

Function

The IM 154-2 DP High Feature interface modules are configured using STEP 7 V5.3 SP3. A hardware support package is available for STEP 7 V5.3 SP2 and higher.

Integration into older versions is possible via GSD.

Technical specifications

	6ES7154-2AA01-0AB0
General information	
Vendor identification (VendorID)	8119H
Supply voltage	24 V DC
Permissible range (DC)	20.4 V ... 28.8 V
Short-circuit protection	Yes; over exchangeable fuses
Load voltage 1L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes; against destruction
Input current	
from supply voltage 1L+, max.	200 mA
Power losses	
Power loss, typ.	5 W
Address area	
Addressing volume	
• Inputs	244 byte
• Outputs	244 byte
Interfaces	
PROFIBUS DP	
• Automatic detection of transmission speed	Yes
1st interface	
Type of interface	PROFIBUS DP
Physics	RS 485
Functionality	
• DP slave	Yes
DP slave	
• Transmission rate, min.	9.6 kbit/s
• Transmission rate, max.	12 Mbit/s
• Services	
- SYNC/FREEZE	Yes
- Direct data exchange (slave-to-slave communication)	Yes
Interrupts/diagnostics/status information	
Diagnostics indication LED	
• Bus fault BF (red)	Yes
• Group error SF (red)	Yes
• Monitoring 24 V voltage supply ON (green)	Yes
• Load voltage monitoring 24 V DC (green)	Yes
Parameter	
DPV1 operation	possible
Hardware interrupt	Parameterizable
Swapping interrupt	Parameterizable
Startup if setpoint not equal to actual configuration	Parameterizable
Galvanic isolation	
between supply voltage and electronics	Yes
Isolation	
Isolation checked with	500 V DC
Degree and class of protection	
IP67	Yes
Ambient conditions	
Operating temperature	
• Min.	-25 °C
• max.	55 °C
Storage/transport temperature	
• Min.	-40 °C
• max.	70 °C
Dimensions	
Width x Height x Depth (mm)	90 x 130 x 59.3
Weight, approx.	375 g

Selection and ordering data

	Article No.
IM154-2 High Feature interface module For ET 200pro; for communication between ET 200pro and higher-level masters over PROFIBUS DP; support of PROFIsafe.	**6ES7154-2AA01-0AB0**
Accessories	
CM IM DP ECOFAST connection module For connecting PROFIBUS DP and the 24 V power supply to PROFIBUS interface modules, 2 ECOFAST Cu connections.	**6ES7194-4AA00-0AA0**
CM IM DP direct connection module For connecting PROFIBUS DP and the 24 V power supply directly to PROFIBUS interface modules, up to six M20 cable glands.	**6ES7194-4AC00-0AA0**
CM IM DP M12, 7/8" connection module For connecting PROFIBUS DP and the 24 V power supply to PROFIBUS interface modules, 2 x M12 and 2 x 7/8".	**6ES7194-4AD00-0AA0**
Accessories for CM IM DP ECOFAST	
PROFIBUS ECOFAST hybrid cable, preassembled With 2 ECOFAST connectors, trailing-type cable with 2 x CU 0.64 mm^2 and 4 x Cu 1.5 mm^2, in various lengths:	
1.5 m	**6XV1830-7BH15**
3.0 m	**6XV1830-7BH30**
5.0 m	**6XV1830-7BH50**
10 m	**6XV1830-7BN10**
15 m	**6XV1830-7BN15**
20 m	**6XV1830-7BN20**
25 m	**6XV1830-7BN25**
30 m	**6XV1830-7BN30**
35 m	**6XV1830-7BN35**
40 m	**6XV1830-7BN40**
45 m	**6XV1830-7BN45**
50 m	**6XV1830-7BN50**
PROFIBUS ECOFAST hybrid cable GP, preassembled With 2 ECOFAST connectors, trailing-type cable with 2 x CU 0.64 mm^2 and 4 x Cu 1.5 mm^2, in various lengths:	
1.5 m	**6XV1860-3PH15**
3.0 m	**6XV1860-3PH30**
5.0 m	**6XV1860-3PH50**
10 m	**6XV1860-3PN10**
15 m	**6XV1860-3PN15**
20 m	**6XV1860-3PN20**
25 m	**6XV1860-3PN25**
30 m	**6XV1860-3PN30**
35 m	**6XV1860-3PN35**
40 m	**6XV1860-3PN40**
45 m	**6XV1860-3PN45**
50 m	**6XV1860-3PN50**
PROFIBUS ECOFAST hybrid cable, non-assembled Trailing-type cable with 2 x CU 0.64 mm^2 and 4 x Cu 1.5 mm^2, in various lengths:	
50 m	**6XV1830-7AN50**
100 m	**6XV1830-7AT10**
PROFIBUS ECOFAST hybrid cable GP, non-assembled Trailing-type cable with 2 x CU 0.64 mm^2 and 4 x Cu 1.5 mm^2, in various lengths:	
50 m	**6XV1860-4PN50**
100 m	**6XV1860-4PT10**
PROFIBUS ECOFAST hybrid connector 180 ECOFAST Cu, 2 x Cu, 4 x 1.5 mm^2, HANBRID connector	
• With male insert, 5-pack	**6GK1905-0CA00**
• With female insert, 5-pack	**6GK1905-0CB00**
PROFIBUS ECOFAST hybrid connector angular ECOFAST Cu, 2 x Cu, 4 x 1.5 mm^2, HANBRID connector	
• With male insert, 5-pack	**6GK1905-0CC00**
• With female insert, 5-pack	**6GK1905-0CD00**
Accessories for CM IM DP direct	
PROFIBUS trailing cable Max. acceleration 4 m/s^2, at least 3 000 000 bending cycles, bending radius at least 60 mm, 2-core shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m.	**6XV1830-3EH10**
PROFIBUS FC Food bus cable With PE sheath for use in the food and beverages industry, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m.	**6XV1830-0GH10**
PROFIBUS FC Robust bus cable With PUR sheath for use in environments subject to harsh chemicals and extreme mechanical stress, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m.	**6XV1830-0JH10**
Power line 5-core, 5 x 1.5 mm^2, trailing type, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m.	**6XV1830-8AH10**

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SIMATIC IM 154-2 DP High Feature

Accessories for CM IM DP M12, 7/8"	Article No. a. Anfr.
PROFIBUS M12 connecting cable	
Preassembled with two M12 connectors, 5-pin, in various lengths:	
1.5 m	**6XV1830-3DH15**
2.0 m	**6XV1830-3DH20**
3.0 m	**6XV1830-3DH30**
5.0 m	**6XV1830-3DH50**
10 m	**6XV1830-3DN10**
15 m	**6XV1830-3DN15**
7/8" connecting cable to power supply	
5-core, 5 x 1.5 mm^2, trailing type, preassembled with two 7/8" connectors, 5-pin, in various lengths:	
1.5 m	**6XV1822-5BH15**
2.0 m	**6XV1822-5BH20**
3.0 m	**6XV1822-5BH30**
5.0 m	**6XV1822-5BH50**
10 m	**6XV1822-5BN10**
15 m	**6XV1822-5BN15**
M12 cable connector	
For ET 200eco, with axial cable outlet.	
• With male insert, 5-pack	**6GK1905-0EA00**
• With female insert, 5-pack	**6GK1905-0EB00**
PROFIBUS M12 bus termination connector	**6GK1905-0EC00**
With male insert.	
7/8" cable connector	
For ET 200eco, with axial cable outlet.	
• With male insert, 5-pack	**6GK1905-0FA00**
• With female insert, 5-pack	**6GK1905-0FB00**
M12 sealing cap	**3RX9 802-0AA00**
For protection of unused M12 connections with ET 200pro.	
Sealing cap 7/8"	**6ES7194-3JA00-0AA0**
For protection of unused 7/8" connections with ET 200pro; 10 units per pack.	

General accessories	Article No. a. Anfr.
ET 200pro rack	
• Narrow, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GA00-0AA0**
- 1000 mm	**6ES7194-4GA60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GA20-0AA0**
• Compact, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GC70-0AA0**
- 1000 mm	**6ES7194-4GC60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GC20-0AA0**
• Wide, for interface, electronics, power modules and motor starters	
- 500 mm	**6ES7194-4GB00-0AA0**
- 1000 mm	**6ES7194-4GB60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GB20-0AA0**
• Wide, for I/O modules and motor starters	
- 500 mm	**6ES7194-4GD00-0AA0**
- 1000 mm	**6ES7194-4GD10-0AA0**
- 2000 mm	**6ES7194-4GD20-0AA0**
Spare fuse	**6ES7194-4HB00-0AA0**
12.5 A fast-blow, for interface and power modules, 10 units per pack.	
PROFIBUS Fast Connect bus cable	**6XV1830-0EH10**
Standard type with special design for quick mounting, 2-core, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m.	
PROFIBUS Hybrid Standard Cable GP	**6XV1860-2R**
Standard PROFIBUS hybrid cable with 2 energy cables (1.5 mm^2) for supplying data and energy for ET 200pro.	
Technical product data	**6ES7991-0CD01-0YX0**
For CAX applications, one-off license.	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication).	
SIMATIC Manual Collection – Update service for 1 year	**6ES7998-8XC01-8YE2**
Scope of delivery: Current DVD "S7 Manual Collection" and the three subsequent updates.	

Overview

Interface module for processing the communication between ET 200pro and a higher-level controller over PROFINET IO.

Application

The IM 154-4 PN High Feature interface module handles the communication between ET 200pro and the higher-level PLC over PROFINET IO.

Design

The interface module contains a 2-port switch required for linear bus topologies and for communication. PROFIsafe applications are also possible in combination with this module.

Connection modules for the IM 154-4 PN interface module (to be ordered separately):

- CM IM PN M12, 7/8"
- CM IM PN 2XRJ45
- CM IM PN 2XSCRJ FO

Function

The IM 154-4 PN High Feature interface modules are configured using STEP 7 V5.4. The module can be configured using a hardware support package from STEP 7 V5.3 SP3. A GSD file allows it to be integrated into older versions of STEP 7.

Technical specifications

	6ES7154-4AB10-0AB0
General information	
Vendor identification (VendorID)	0x002A
Device identifier (DeviceID)	0x0305
Supply voltage	
Rated value	24 V DC
Permissible range	20.4 V ... 28.8 V DC
Short-circuit protection	Yes; Fuse in lower part is exchangeable, the fuse on the IM-LP is not
Load voltage 1L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes; against destruction
Input current	
from supply voltage 1L+, max.	400 mA; Dependent on terminal module, typ. maximum value for FO connection method, full load on RWB and 20.4 V input voltage
Power losses, typ.	6 W; Dependent on terminal module, typ. maximum value for CU connection method, full load on RWB, for FO the value is approx. 0.7 W higher
Memory	
Micro Memory Card	No; Internal memory
Address area	
• Inputs	256 byte
• Outputs	256 byte
Interfaces	
Supports protocol for PROFINET IO	
• Automatic detection of transmission speed	Yes
• Transmission rate, max.	100 Mbit/s
• Services	ARP, PING, SNMP
Protocols	
Supports protocol for PROFINET IO	Yes
Interrupts/diagnostics/status information	
Diagnostics indication LED	
• Bus fault BF (red)	Yes; Additional LEDs (MAINT, P1/2 LINK, P1/2 RX/TX) available
• Group error SF (red)	Yes
• Monitoring 24 V voltage supply ON (green)	Yes
• Load voltage monitoring DC 24 V (green)	Yes
Parameter	
Diagnostic alarm	1
Hardware interrupt	1
Swapping interrupt	1
identifier-related diagnostic data	1
Module status	1
Channel-related diagnostics	1
Startup if setpoint not equal to actual configuration	1
Hot swapping of modules	1
Galvanic isolation	
between backplane bus and electronics	No
between supply voltage and electronics	Yes
Isolation	
Isolation checked with	500 V DC
Degree and class of protection	IP 67
Ambient conditions	
Operating temperature	-25 °C ... 55 °C
Storage/transport temperature	-40 °C ... 70 °C
Dimensions	
Width x Height x Depth (mm)	135 x 130 x 59.3
Weight, approx.	490 g

SIMATIC IM 154-4 PN High Feature

Selection and ordering data

	Article No.
IM 154-4 PN High Feature interface module For communication between ET 200pro and higher-level controllers over PROFINET IO; support of PROFIsafe.	**6ES7154-4AB10-0AB0**
Accessories	
CM IM PN connection module M12, 7/8" For connecting PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x M12 and 2 x 7/8".	**6ES7194-4AJ00-0AA0**
CM IM PN connection module 2xRJ45 For connecting PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x RJ45 and 2 x push-pull power connector.	**6ES7194-4AF00-0AA0**
CM IM PN 2xSCRJ FO connection module For connecting PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x SCRJ FO and 2 x push-pull power connector.	**6ES7194-4AG00-0AA0**
M12 sealing cap For protection of unused M12 connections with ET 200pro.	**3RX9 802-0AA00**
IE M12 connecting cables Preassembled with two M12 connectors, up to 85 m, in various lengths:	
0.3 m	**6XV1870-8AE30**
0.5 m	**6XV1870-8AE50**
1.0 m	**6XV1870-8AH10**
1.5 m	**6XV1870-8AH15**
2.0 m	**6XV1870-8AH20**
3.0 m	**6XV1870-8AH30**
5.0 m	**6XV1870-8AH50**
10 m	**6XV1870-8AN10**
15 m	**6XV1870-8AN15**
Other special lengths with 90° or 180° cable outlet.	
http://support.automation.siemens.com/WW/view/en/26999294	
7/8" sealing caps 1 pack = 10 units	**6ES7194-3JA00-0AA0**
7/8" connecting cable to power supply 5-core, 5 x 1.5 mm^2, trailing type, preassembled with two 7/8" connectors, 5-pin, up to 50 m, in various lengths:	
1.5 m	**6XV1822-5BH15**
2.0 m	**6XV1822-5BH20**
3.0 m	**6XV1822-5BH30**
5.0 m	**6XV1822-5BH50**
10 m	**6XV1822-5BN10**
15 m	**6XV1822-5BN15**

	Article No.
Other special lengths with 90° or 180° cable outlet.	
http://support.automation.siemens.com/WW/view/en/26999294	
Power line 5-core, 5 x 1.5 mm^2, trailing type, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m.	**6XV1830-8AH10**
7/8" cable connector For ET 200eco, with axial cable outlet.	
• With male insert, 5-pack	**6GK1905-0FA00**
• With female insert, 5-pack	**6GK1905-0FB00**
Industrial Ethernet FastConnect installation cables	
• **IE FC TP Standard Cable GP 2 x 2**; Sold by the meter, max. delivery unit 1 000 m; Minimum order quantity 20 m.	**6XV1840-2AH10**
• **IE FC TP Trailing Cable 2 x 2**; Sold by the meter, max. order quantity 1000 m; Minimum order quantity 20 m.	**6XV1840-3AH10**
• **IE FC TP Trailing Cable GP 2 x 2**; sold by the meter, max. delivery unit 1000 m; minimum order quantity 20 m.	**6XV1870-2D**
• **IE TP Torsion Cable GP 2 x 2**; sold by the meter, max. delivery unit 1000 m; minimum order quantity 20 m.	**6XV1870-2F**
• **IE FC TP Marine Cable 2 x 2**; Sold by the meter, max. order quantity 1000 m; Minimum order quantity 20 m.	**6XV1840-4AH10**
IE RJ45 Plug PRO RJ45 plug in IP65/67-rated design for on-site assembly, plastic housing, insulation/displacement connection system, for SCALANCE X-200IRT PRO and ET200pro: 1 pack = 1 unit.	**6GK1901-1BB10-6AA0**
IE SC RJ POF Plug PRO SC RJ plug for POF fibers in IP65/67-rated design for on-site assembly, plastic housing, for SCALANCE X-200IRT PRO and ET200pro 1 pack = 1 unit	**6GK1900-0MB00-6AA0**
IE SC RJ PCF Plug PRO SC RJ plug connector for PCF fibers in IP65/67-rated design for on-site assembly, plastic housing, for SCALANCE X-200IRT PRO 1 pack = 1 unit.	**6GK1900-0NB00-6AA0**
Power Plug PRO 5-pole power plug for 2 x 24 V power supply in IP65/67-rated design, for on-site assembly, plastic housing, for SCALANCE X-200IRT and ET200 pro 1 pack = 1 unit.	**6GK1907-0AB10-6AA0**

	Article No.
IE panel feedthrough Control cabinet feedthrough for converting M12 D-coded connection system (IP65) to RJ45 connection system (IP20).	
• 1 pack = 5 units	**6GK1901-0DM20-2AA5**
Push-Pull cable connector For 1L+/ 2L+, unassembled	**6GK1907-0AB10-6AA0**
Cover caps for Push-Pull RJ45 female connectors 5 items per pack	**6ES7194-4JD50-0AA0**
General accessories	
ET 200pro rack	
• Narrow, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GA00-0AA0**
- 1000 mm	**6ES7194-4GA60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GA20-0AA0**
• Compact, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GC70-0AA0**
- 1000 mm	**6ES7194-4GC60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GC20-0AA0**
• Wide, for interface, electronics, power modules and motor starters	
- 500 mm	**6ES7194-4GB00-0AA0**
- 1000 mm	**6ES7194-4GB60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GB20-0AA0**
• Wide, for I/O modules and motor starters	
- 500 mm	**6ES7194-4GD00-0AA0**
- 1000 mm	**6ES7194-4GD10-0AA0**
- 2000 mm	**6ES7194-4GD20-0AA0**
Spare fuse 12.5 A fast-blow, for interface and power modules, 10 units per pack.	**6ES7194-4HB00-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multilanguage: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication).	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection – Update service for 1 year Scope of delivery: Current DVD "S7 Manual Collection" and the three subsequent updates.	**6ES7998-8XC01-8YE2**

SIMATIC IM 154-6 PN IWLAN

Overview

Interface module for handling communication between ET 200pro and host PROFINET IO controllers over Industrial Wireless LAN (IWLAN) radio networks for 2.4 GHz or 5 GHz with data transfer rates up to 54 Mbit/s.

- Protection against illegal access, espionage, tapping and falsification through use of effective encryption mechanisms
- Fast exchange of devices through use of interchangeable medium MICRO MEMORY CARD

Application

The IM 154-6 PN HF IWLAN High interface module handles communication between ET 200pro and host PROFINET IO controllers over Industrial Wireless LAN (IWLAN) radio networks for 2.4 GHz or 5 GHz.

It permits the use of an ET 200pro for applications in which a cabled solution can only be implemented at high cost (wear, distance, inaccessible terrain).

Possible fields of application include:

- Automatic guided vehicle systems
- Escalators
- Warehouse logistics
- Goods transportation
- Electric overhead conveyors
- Building management
- Service applications

The IM 154-6 PN HF IWLAN interface module communicates via Industrial Wireless LAN Access Points with PROFINET IO controllers which respond in accordance with the IEC 61158 standard.

Design

The IM 154-6 PN HF interface module IWLAN consists of:

- an interface unit (IWLAN radio card; compatible with IEEE 802.11a/h/b/g and IEEE 802.11e/i) and
- a connection unit

The interface unit and the connection unit are supplied together with the terminating module.

By means of a screw connection (R-SMA), antennas can be connected directly or also remotely to the interface module.

Device names as well as the user and configuration data can be saved on a SIMATIC Micro Memory Card.

Function

The IM 154-6 PN HF IWLAN interface module communicates with host systems. It is an IWLAN station, and exchanges data via access points. It can move freely within the radio field.

In addition to a reliable radio link, the IM 154-6 PN HF IWLAN interface module has the following features:

- IEEE 802.11b/ g/ a for different frequency bands
- IEEE 802.11h for different frequency bands [1)]
- IEEE 802.11e for multimedia, wireless multimedia (WMM)
- IEEE 802.11i for security
- Maximum transmission rate (gross data transfer rate) 54 Mbit/s
- Transmission methods (physical layer)
  - Direct Sequence Spread Spectrum (DSSS)
  - Complementary Code Keying (CCK)
  - Orthogonal Frequency Division Multiplexing (OFDM)
- Frequency bands / channels
  - 2.4 – 2.4835 GHz / 13 or 11
  - 5.15 – 5.25 GHz / 4
  - 5.25 – 5.35 GHz / 4 [1)]
  - 5.47 – 5.725 GHz / 11 [1)]
  - 5.745 – 5.825 GHz / 5
- Supported Industrial Wireless LAN services
  - Optimized media access with Industrial Point Coordination Function (iPCF)
  - Interruption-free swapping of radio cell with Rapid Roaming (RR)
  - Fault suppression mechanisms with Dynamic Frequency Selection (DFS) [1)] and Transmission Power Control (TPC)
- Use of two antennas for optimization of data transmission

Security

A high degree of data security is achieved using the WPA2/IEEE 802.11i mechanisms. Modern procedures are defined here which control the regular replacement of the complete 128-bit keys and also provide access control (authentication) for a participant. Data encryption is carried out in accordance with the Advanced Encryption Standard (AES).

1) Not valid for 6ES7154-6AB50-0AB0

Technical specifications

IM 154-6 PN IWLAN interface module	6ES7154-6AB00-0AB0 6ES7154-6AB50-0AB0
Supply voltage for electronic components 1L+	
• Rated value	24 V DC
• Valid range, lower limit	20.4 V DC
• Valid range, upper limit	28.8 V DC
• Short-circuit protection	Yes; replaceable fuse
• Reverse polarity protection	Yes; against destruction
• Max. infeed current	5 A
Load voltage 2L+	
• Rated value (DC)	24 V DC
• Lower limit of permissible range	20.4 V DC
• Upper limit of permissible range	28.8 V DC
• Short-circuit protection	Yes, for potential group
• Reverse polarity protection	Yes; against destruction
• Max. infeed current	8 A
Current consumption from supply voltage 1L+, typ.	335 mA
Power loss, typ.	8.5 W
Memory type	Micro Memory Card, is required
Address range/address volume	
• Outputs	256 byte
• Inputs	256 byte
Reports	
• PROFINET IO	Yes
• Industrial Wireless LAN	Yes
PROFINET IO services	ARP, PING, SNMP
Industrial Wireless LAN	
• Transmission rate, max.	54 Mbit/s
• Standards for wireless communication	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11h (not valid for 6ES7154-6AB50-0AB0) IEEE 802.11e IEEE 802.11i
• Radio frequency for WLAN in 2.4 GHz frequency band	2,4 ... 2.4835 GHz
• Radio frequency for WLAN in 5 GHz frequency band	5,15 ... 5.825 GHz
• Transmission method	Direct Sequence Spread Spectrum (DSSS) Complementary Code Keying (CCK) Orthogonal Frequency Division Multiplexing (OFDM)
• Supported IWLAN services	Current approvals can be found in the Internet at
http://support.automation.siemens.com/WW/view/en/19812553	
• Connection for external antenna	Yes

IM 154-6 PN IWLAN interface module	6ES7154-6AB00-0AB0 6ES7154-6AB50-0AB0
Parameters	
• Diagnostic interrupt	Yes
• Maintenance alarm	Yes
• Hardware interrupt	Yes
• Swapping interrupt	Yes
• Identifier-related diagnostic data	Yes
• Module status	Yes
• Channel-specific diagnostics	Yes
• Start-up if preset configuration is not equal to actual configuration	Yes
• Module replacement during operation	Yes
Diagnostics indication (LED)	Yes
• Group fault (red)	Yes
• Bus fault (red)	Yes
• Maintenance information (yellow)	Yes
• Monitoring 24 V power supply ON (green)	Yes
• Load voltage monitoring 24 V DC (green)	Yes
• Connection to an Access Point R1 LINK (green)	Yes
• Data exchange R1 RX/TX (yellow)	Yes
• Connection to a PG/PC (green)	Yes
• Data exchange with a PG/PC (yellow)	Yes
Insulation tested at	500 V DC
Isolation	
• Between the backplane bus and supply voltage 1L+ and 2L+	Yes
• Between Ethernet and supply voltage 1L+ and 2L+	Yes
• Between the supply voltage and electronic components	Yes
Operating temperature	
• Minimum	-25 °C
• Maximum	55 °C
Storage/transport temperature	
• Minimum	-40 °C
• Maximum	70 °C
Degree of protection	IP65, IP66, IP67
General information	
• Manufacturer's code (VendorID)	0x002A
• Device ID	0x0305
Dimensions	
• Width	135 mm
• Height	130 mm
• Depth	60 mm
Weight, approx.	1085 g

SIMATIC IM 154-6 PN IWLAN

Selection and ordering data

	Article No.
IM 154-6 PN HF IWLAN interface module	
For communication between ET 200pro and higher-level controllers over Industrial Wireless LAN (IWLAN) radio networks; support of PROFIsafe.	
With various national approvals; refer to the current list of approvals.	**6ES7154-6AB00-0AB0**
With approval for USA.	**6ES7154-6AB50-0AB0**
Antennas with omnidirectional characteristic	
Mounting directly on IM154-6 PN HF IWLAN	
• ANT IM 154-6 IWLAN; 2 units	**6ES7194-4MA00-0AA0**
For wall or pipe mounting	
• ANT 792-6MN; rod antenna N-Connect female 2.4 GHz; 1 unit	**6GK5792-6MN00-0AA6**
• ANT793-6MN; rod antenna N-Connect female 5 GHz; 1 unit	**6GK5793-6MN00-0AA6**
For use with the RCoax antenna system	
• ANT 792-4DN; RCoax N-Connect female 2.4 GHz; 1 unit	**6GK5792-4DN00-0AA6**
• ANT793-4MN; RCoax N-Connect female 5 GHz; 1 unit	**6GK5793-4MN00-0AA6**
Antenna cables IWLAN RCoax; N-Connect / R-SMA	
1 m	**6XV1875-5CH10**
2 m	**6XV1875-5CH20**
5 m	**6XV1875-5CH50**
10 m	**6XV1875-5CN10**
IWLAN terminating resistor 50 ohms for second R-SMA antenna socket, 3 units.	**6GK5795-1TR10-0AA6**
Accessories	
7/8" connecting cable to power supply	
5-core, 5 x 1.5 mm^2, trailing type, preassembled with two 7/8" connectors, in various lengths:	
1.5 m	**6XV1822-5BH15**
2.0 m	**6XV1822-5BH20**
3.0 m	**6XV1822-5BH30**
5.0 m	**6XV1822-5BH50**
10 m	**6XV1822-5BN10**
15 m	**6XV1822-5BN15**
Other special lengths with 90° or 180° cable outlet.	See http://support.automation.siemens.com/WW/view/en/26999294
Power line	**6XV1830-8AH10**
5-core, 5 x 1.5 mm^2, trailing type, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m.	
7/8" cable connector	**6GK1905-0FB00**
For ET 200eco, with axial cable outlet; with socket insert, pack of 5.	

	Article No.
Twisted Pair cables 4x2 with RJ45 connectors	
0.5 m	**6XV1870-3QE50**
1 m	**6XV1870-3QH10**
2 m	**6XV1870-3QH20**
6 m	**6XV1870-3QH60**
10 m	**6XV1870-3QN10**
Crossed Twisted Pair cables 4x2 with RJ45 connectors	
0.5 m	**6XV1870-3RE50**
1 m	**6XV1870-3RH10**
2 m	**6XV1870-3RH20**
6 m	**6XV1870-3RH60**
10 m	**6XV1870-3RN10**
IE FC RJ45 Plug 180	
180° cable outlet; for line components and CPs/CPUs with Industrial Ethernet interface.	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
IE FC RJ45 Plug 90	
90° cable outlet; e.g. for ET 200S.	
• 1 pack = 1 unit	**6GK1901-1BB20-2AA0**
• 1 pack = 10 units	**6GK1901-1BB20-2AB0**
General accessories	
ET 200pro rack	
• Narrow, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GA00-0AA0**
- 1000 mm	**6ES7194-4GA60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GA20-0AA0**
• Compact, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GC70-0AA0**
- 1000 mm	**6ES7194-4GC60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GC20-0AA0**
• Wide, for interface, electronics, power modules and motor starters	
- 500 mm	**6ES7194-4GB00-0AA0**
- 1000 mm	**6ES7194-4GB60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GB20-0AA0**
• Wide, for I/O modules and motor starters	
- 500 mm	**6ES7194-4GD00-0AA0**
- 1000 mm	**6ES7194-4GD10-0AA0**
- 2000 mm	**6ES7194-4GD20-0AA0**
Spare fuse	**6ES7194-4HB00-0AA0**
12.5 A fast-blow, for interface and power modules, 10 units per pack.	
Labels	**3RT1900-1SB20**
20 x 7 mm, pale turquoise, 340 units per pack.	

	Article No.
SIMATIC Micro Memory Card	
• 64 KB	**6ES7953-8LF20-0AA0**
• 128 KB	**6ES7953-8LG20-0AA0**
• 512 KB	**6ES7953-8LJ30-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication).	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection – Update service for 1 year Scope of delivery: Current DVD "S7 Manual Collection" and the three subsequent updates.	**6ES7998-8XC01-8YE2**

More information

Radio approvals

Current approvals can be found on the Internet.

In Germany

Further information can be found on the Internet at:

www.siemens.com/funkzulassungen

Outside Germany:

Further information can be found on the Internet at:

www.siemens.com/wireless-approvals

SIMATIC IM 154-8 F PN/DP CPU

Overview

- Interface module for SIMATIC ET 200pro with integrated fail-safe CPU
- CPU with PLC functionality equivalent to CPU S7-315F PN/DP; with distributed intelligence for preprocessing
- For constructing a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements up to SIL 3 according to IEC 61508, IEC 62061, up to PLe according to ISO 13849-1:2006 and Cat. 4 according to EN 954-1
- For high-performance control solutions in ET 200pro
- Increase of the availability of systems and machines
- Integral Web server with the option of creating user-defined Web sites
- Isochronous mode on PROFIBUS or PROFINET
- PROFINET IO Controller for up to 128 IO Devices
- PROFINET interface with integrated 3-port switch
- With many communication options:
  PG/OP communication, PROFINET IO, PROFINET CBA, open IE communication (TCP, ISO-on-TCP and UDP), web server and S7-communication (with loadable FBs)
- Fast, simple and end-to-end programming of a system with modular programs via STEP 7
- Compact SIMATIC Micro Memory Card (MMC)

Note:
SIMATIC Micro Memory Card required for operation of CPU.

Application

The intelligent interface module IM 154-8 F PN/DP CPU features integrated PLC functionality. The functions included correspond to those of the S7-300 CPU 315F PN/DP.

The IM 154-8 F PN/DP CPU can be used simultaneously as an IO Controller and as an I-Device on PROFINET via the integral PROFINET interface.

The ET 200pro can use this interface module to control autonomous technological functional units, e.g.:

- Conveyor systems, switches
- Lifting stations
- Positioning tasks

Further distributed I/Os can be connected via the additionally available PROFIBUS interface. In doing so, the IM 154-8 F PN/DP CPU can be used as master or slave on PROFIBUS.

In this way, applications in extensive manufacturing cells are possible with preprocessing; stand-alone operation is also possible. Cabinet-free installations are possible due to the high IP67 rating.

Design

Interface module and connection module

The IM 154-8 F PN/DP CPU intelligent interface module consists of two components:

- IM 154-8 F PN/DP CPU (6ES7154-8FB01-0AB0 or 6ES7154-8FX00-0AB0) and
- CM IM PN DP M12 7/8" connection module (6ES7194-4AN00-0AA0)

Both components are sold separately.

The IM 154-8 F PN/DP CPU interface module features the following:

- 3 PROFINET ports (2 x M12, 1 x RJ45)
- 2 MPI/PROFIBUS connections (input and output, M12)
- Integral CPU with the performance power of an S7-300-CPU 315F PN/DP
- RUN/STOP switch and RJ45 PROFINET port behind a sealed cover
- Micro Memory Card below the connection module

Function

Configurable and programmable properties

- I/O setup:
  Type and scope
- Startup and cycle behavior:
  Stipulation of maximum cycle time and loading as well as self-test functions
- Definition of the number of retentive bit memories, counters, timers and data blocks
- Clock memory:
  Address setting
- Protection level:
  Specifying the access rights to programs and data
- Definition of the handling and scope of diagnostic messages
- Cyclic interrupts:
  Setting of periodicity
- Time-of-day interrupts:
  Setting of date and time of start and periodicity

Display and information functions

- Status and error functions;
  LEDs indicate, for example, hardware, programming, time or I/O errors, as well as operating states such as RUN, STOP, restart, etc.
- Test functions;
  the PG is used to indicate signal statuses during program execution, to modify process variables independently of the user program and to output the contents of stack memories
- Information functions;
  you can use the programming device to obtain information about the storage capacity and operating mode of the CPU as well as the current utilization of the main and load memories, current cycle times and diagnostic buffer contents in plain text

Programming, parameterization

The ET 200pro with IM 154-8 F PN/DP CPU can be universally programmed, configured and diagnosed from any point in the network. STEP 7, V5.5 or higher, is used for this.

SIMATIC S7 Distributed Safety option package

The STEP 7 option package "SIMATIC S7 Distributed Safety" is required for programming the safety-related program components. The package contains all the necessary functions and blocks for creating the F program.

The F program with the safety functions is connected in F FBD or F LAD or using special function blocks from the F library. Use of F FBD or F LAD simplifies configuration and programming of the system and also acceptance testing thanks to the cross-system uniform presentation form. Programmers can concentrate fully on the safety-related application without having to use additional tools.

SIMATIC S7 Distributed Safety (Classic) and
SIMATIC Safety Advanced V13 (TIA Portal V13) option packages

The STEP 7 option packages "SIMATIC S7 Distributed Safety" (Classic) or SIMATIC Safety Advanced V13 (TIA Portal V13) are required for programming the safety-related program sections. The packages contains all the functions and blocks required to create the F program.

The F program with the safety functions is created in F-FBD or F-LAD or using special function blocks from the F library. Use of F-FBD or F-LAD simplifies configuration and programming of the plant and, due to the cross-plant, uniform presentation, also acceptance testing. The programmer can therefore concentrate entirely on configuring the safety-related application, without the need to use any additional tools.

Technical specifications

	6ES7154-8FB01-0AB0	6ES7154-8FX00-0AB0
General information		
Engineering withYes		
• Programming package	STEP 7 V 5.5, Distributed Safety V 5.4 SP4 STEP 7 Professional V13 SP1 or higher: STEP 7 Safety Advanced V13	STEP 7 V5.5 mit HSP 222 + Distributed Safety V5.4 SP4 STEP 7 Professional V13 SP1 or higher: STEP 7 Safety Advanced V13
Supply voltage		
24 V DC	Yes	Yes
Power losses		
Power loss, typ.	8.5 W; Typical	8.5 W; Typical
Memory		
Main memory		
• integrated	512 kbyte	1 536 kbyte
Load memory		
• pluggable (MMC), max.	8 Mbyte	8 Mbyte
CPU processing times		
for bit operations, typ.	0.05 µs	0.025 µs
for word operations, typ.	0.09 µs	0.03 µs
for fixed point arithmetic, typ.	0.12 µs	0.04 µs
for floating point arithmetic, typ.	0.45 µs	0.16 µs
Counters, timers and their retentivity		
S7 counter		
• Number	256	256
IEC counter		
• present	Yes	Yes
S7 times		
• Number	256	256
IEC timer		
• present	Yes	Yes
Data areas and their retentivity		
Flags		
• Number, max.	2 048 byte	2 048 byte

SIMATIC IM 154-8 F PN/DP CPU

	6ES7154-8FB01-0AB0	6ES7154-8FX00-0AB0
Address area		
I/O address area		
• Inputs	2 048 byte	2 048 byte
• Outputs	2 048 byte	2 048 byte
Process image		
• Inputs, adjustable	2 048 byte	2 048 byte
• Outputs, adjustable	2 048 byte	2 048 byte
Time of day		
Clock		
• Hardware clock (real-time clock)	Yes	Yes
Operating hours counter		
• Number	1	1
1st interface		
Type of interface	Integrated RS 485 interface	Integrated RS 485 interface
Physics	RS 485/connection: 2 x M12 b-coded	RS 485/connection: 2 x M12 b-coded
Functionality		
• MPI	Yes	Yes
• DP master	Yes	Yes
• DP slave	Yes	Yes
• Point-to-point connection	No	No
DP master		
• Number of DP slaves, max.	124	124
2nd interface		
Type of interface	PROFINET	PROFINET
Physics	Ethernet (2 x M12 d-coded; 1 x RJ45)	Ethernet (2 x M12 d-coded; 1 x RJ45)
Number of ports	3	3
Functionality		
• MPI	No	No
• DP master	No	No
• DP slave	No	No
• PROFINET IO Controller	Yes; Also simultaneously with IO-Device functionality	Yes; Also simultaneously with IO-Device functionality
• PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality	Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA	Yes	Yes
PROFINET IO Controller		
• Max. number of connectable IO devices for RT	128	128
• Number of IO devices with IRT and the option "high flexibility"	128	128
• Number of IO Devices with IRT and the option "high performance", max.	64	64
Isochronous mode		
Isochronous operation (application synchronized up to terminal)	Yes; Via PROFIBUS DP or PROFINET interface	Yes; Via PROFIBUS DP or PROFINET interface
Communication functions		
PG/OP communication	Yes	Yes
Global data communication		
• supported	Yes	Yes
S7 basic communication		
• supported	Yes	Yes
S7 communication		
• supported	Yes	Yes

	6ES7154-8FB01-0AB0	6ES7154-8FX00-0AB0
Open IE communication		
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	8	8
• ISO-on-TCP (RFC1006)	Yes	Yes
- Number of connections, max.	8	8
• UDP	Yes	Yes
- Number of connections, max.	8	8
Web server		
• supported	Yes	Yes
Configuration		
programming		
• Programming language		
- LAD	Yes	Yes
- FBD	Yes	Yes
- STL	Yes	Yes
- SCL	Yes	Yes
- CFC	Yes	Yes
- GRAPH	Yes	Yes
- HiGraph®	Yes	Yes
Know-how protection		
• User program protection/password protection	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions		
Width	135 mm	135 mm
Height	130 mm	130 mm
Depth	65 mm; 60 mm without cover for RJ45 socket; 65 mm with cover for RJ45 socket	65 mm; 60 mm without cover for RJ45 socket; 65 mm with cover for RJ45 socket
Weight		
Weight, approx.	720 g	720 g

Selection and ordering data

	Article No.
IM 154-8 F PN/DP CPU interface module, V3.2	
Fail-safe PROFINET IO Controller for operating distributed I/Os on PROFINET, with integrated PLC functionality.	
• Main memory 512 Kbyte	**6ES7154-8FB01-0AB0**
• Main memory 1.5 Mbyte	**6ES7154-8FX00-0AB0**
Distributed Safety V5.4 programming tool	
Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 V5.3 SP3 and higher	
• Floating license	**6ES7833-1FC02-0YA5**
• Floating license for 1 user, license key download without software and documentation[2]; email address required for delivery.	**6ES7833-1FC02-0YH5**
Distributed Safety Upgrade	
From V5.x to V5.4; Floating license for 1 user	**6ES7833-1FC02-0YE5**

	Article No.
STEP 7 Safety Advanced V13	
Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, S7-1500F, WinAC RTX F, ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 Professional V13 SP1	
• Floating license for 1 user	**6ES7833-1FA13-0YA5**
• Floating license for 1 user, license key download without software and documentation[2]; email address required for delivery	**6ES7833-1FA13-0YH5**
STEP 7 Safety Advanced Upgrade	
Upgrade from STEP 7 Safety Advanced V11 to STEP 7 Safety Advanced V13. Floating License for one User, Software and documentation on CD	**6ES7833-1FA13-0YE5**
Distributed Safety V5.4 SP5 to Safety Advanced V13 Combo. Combo License for parallel use Distributed Safety V5.4 and STEP 7 Safety Advanced V13. Software and documentation on CD	**6ES7833-1FA13-0YF5**

SIMATIC IM 154-8 F PN/DP CPU

	Article No.
Accessories	
MMC 64 KB [1]	**6ES7953-8LF20-0AA0**
For program backup.	
MMC 128 KB [1]	**6ES7953-8LG20-0AA0**
For program backup.	
MMC 512 KB [1]	**6ES7953-8LJ30-0AA0**
For program backup.	
MMC 2 MB [1]	**6ES7953-8LL31-0AA0**
For program backup and/or firmware updates.	
MMC 4 MB [1]	**6ES7953-8LM20-0AA0**
For program backup.	
MMC 8 MB [1]	**6ES7953-8LP20-0AA0**
For program backup.	
Connection module	**6ES7194-4AN00-0AA0**
For CPU IM154-8 PN/DP, with 4 x M12 and 2 x 7/8", for connecting PROFINET and PROFIBUS DP.	
SCALANCE X-200 Industrial Ethernet Switches	
With integral SNMP access, Web diagnostics, copper cable diagnostics and PROFINET diagnostics, for setting up linear, star and ring structures SCALANCE X208PRO, in degree of protection IP65, with eight 10/100 Mbit/s M12 ports, incl. eleven M12 dust caps.	**6GK5208-0HA00-2AA6**
Industrial Ethernet FC RJ45 Plug 90	
RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 90° cable outlet.	
• 1 unit	**6GK1901-1BB20-2AA0**
• 10 units	**6GK1901-1BB20-2AB0**
Industrial Ethernet FC RJ45 Plug 180	
RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet	
• 1 unit	**6GK1901-1BB10-2AA0**
• 10 units	**6GK1901-1BB10-2AB0**
• 50 units	**6GK1901-1BB10-2AE0**
Industrial Ethernet FastConnect installation cables	
• FastConnect Standard Cable	**6XV1840-2AH10**
• FastConnect Trailing Cable	**6XV1840-3AH10**
• FastConnect Marine Cable	**6XV1840-4AH10**

	Article No.
Industrial Ethernet FastConnect installation cables	
• **IE FC TP Trailing Cable GP 2 x 2**; sold by the meter, max. delivery unit 1000 m; minimum order quantity 20 m.	**6XV1870-2D**
• **IE TP Torsion Cable GP 2 x 2**; sold by the meter, max. delivery unit 1000 m; minimum order quantity 20 m.	**6XV1870-2F**
Industrial Ethernet FastConnect	
Stripping Tool	**6GK1901-1GA00**
IE Connecting Cable M12-180/M12-180	
• Preassembled IE FC TP Trailing Cable GP 2 x 2 (PROFINET Type C) with two 4-pin M12 plugs (4-pin, D-coded), degree of protection IP65/IP67, in various lengths:	
- 0.3 m	**6XV1870-8AE30**
- 0.5 m	**6XV1870-8AE50**
- 1.0 m	**6XV1870-8AH10**
- 1.5 m	**6XV1870-8AH15**
- 2.0 m	**6XV1870-8AH20**
- 3.0 m	**6XV1870-8AH30**
- 5.0 m	**6XV1870-8AH50**
- 10 m	**6XV1870-8AN10**
- 15 m	**6XV1870-8AN15**
• PROFINET M12 connecting cable, trailing cable preassembled at both ends with angled M12 connectors (male contact insert), in various lengths:	
- 3.0 m	**3RK1902-2NB30**
- 5.0 m	**3RK1902-2NB50**
- 10 m	**3RK1902-2NC10**
• PROFINET M12 connecting cable, trailing cable preassembled at one end with angled M12 connector (male contact insert at one end, other end open), in various lengths:	
- 3.0 m	**3RK1902-2HB30**
- 5.0 m	**3RK1902-2HB50**
- 10 m	**3RK1902-2HC10**
IE FC M12 Plug PRO	
PROFINET M12 plug connector, D-coded with fast connection system, axial cable outlet.	
• 1 unit	**6GK1901-0DB20-6AA0**
• 8 units	**6GK1901-0DB20-6AA8**
• PROFINET M12 plug connector, D-coded, angled	**3RK1902-2DA00**
IE panel feedthrough	
Cabinet feedthrough for converting from the M12 connection system (D-coded, IP65/IP67) to the RJ45 connection system (IP20), 1 pack = 5 units	**6GK1901-0DM20-2AA5**

[1] An MMC is essential for operating the CPU.
[2] For up-to-date information and download availability, see: www.siemens.com/tia-online-software-delivery