

I/O systems

SIMATIC ET 200 systems for the control cabinet

SIMATIC ET 200iSP

Overview



The ET 200iSP is a modular, intrinsically safe I/O system with IP30 degree of protection which can be operated in gas and dust atmospheres at ambient temperatures from -20 to +70 °C. It is optimized for use with SIMATIC PCS 7 and PCS neo, but can also be integrated in other systems such as SIMATIC S5 by means of GSD/GSDML file.

In accordance with ATEX directive 2014/34/EU, the ET 200iSP remote I/O stations can be installed directly in the hazardous zones 1 and 2 as well as in non-hazardous areas. The intrinsically safe sensors, actuators and HART field devices can also be located in zone 0 or 20 if necessary.

The modular design of the ET 200iSP makes it possible to optimally adapt the remote I/O stations to the respective automation task through individual configuration and flexible expansion. To increase plant availability, the pressure-encapsulated power supply and the intrinsically safe PROFINET or PROFIBUS DP connection of the stations can also be of redundant design. The intrinsically safe, optical PROFINET connection allows redundancy functions S2 and R1 as well as the setup of fail-safe MRP rings.

The modern architecture with hardwiring and automatic slot coding supports pre-wiring without the electronic modules, simple and reliable hot swapping of individual modules without a fire certificate as well as configuration in run (CiR).

In addition to analog and digital I/O modules for the automation of technological functions of the process (Basic Process Control), the range of electronic modules also includes fail-safe I/O modules for implementing safety applications. The various types of electronic module can be arranged mixed within a station. Comprehensive diagnostic options facilitate commissioning and troubleshooting.

Technical specifications

ET 200iSP – general		
Degree of protection	IP30	
Ambient temperature		
• Horizontal mounting position	-20 ... +70 °C	
• Other mounting positions	-20 ... +50 °C	
Exposure to environmental substances	According to ISA-S71.04 severity level G1; G2; G3 (except for NH3, only level G2 in this case)	
EMC	Electromagnetic compatibility according to NE21	
Vibration resistance	0.5 g continuously, 1 g periodically	
Approvals, standards		
• ATEX	II 2 G (1) GD	Ex db eb [ia/ib] IIC T4
	I M2	Ex db eb [ia/ib] I
	Zone 1	Ex db eb [ia/ib] IIC T4
	Zone 1	BR-Ex db eb [ia/ib] IIC T4
• IECEX		NI Division 2, Groups A, B, C, D T4
	Class I, II, III	AIS Division 1, Groups A, B, C, D, E, F, G
	Class I	Zone 1, AEx de [ia/ib] IIC T4 Division 2, Groups A, B, C, D T4
	Class I, II, III	providing int. safe circuits for Division 1, Groups A, B, C, D, E, F, G
• INMETRO	Class I	Zone 1, AEx de [ia/ib] IIC T4
	Ex de ib[ia] IIC T4	
	Ex de [ia/ib] IIC T4	
	EN 50170, Volume 2	
• cFMus	IEC 61158 and IEC 61784	
	IEC 61131, Part 2	
	In accordance with ATEX directive 2014/34/EU, EMC Directive 2014/30/EU and LVD-guideline 2014/35/EU	
	According to Regulations UKSI 2016:1107	
• cULus	Korea Certification	
	Classification companies	
	• ABS (American Bureau of Shipping)	
	• BV (Bureau Veritas)	
• CCC Ex	• DNV (Det Norske Veritas)	
	• GL (Germanischer Lloyd)	
	• LRS (Lloyds Register of Shipping)	
	• Class NK (Nippon Kaiji Kyokai)	
• PROFIBUS		
• PROFINET		
• IEC		
• CE		
• UKCA		
• KCC		
• Marine approval		

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Power supply unit

Overview



An ET 200iSP power supply unit consists of a TM-PS terminal module (A or B) and a PS power supply module which is plugged onto this. Terminal modules and power supply modules can be ordered separately.

The power supply modules are suitable for both individual operation (standard) and redundant operation. Depending on the operating mode, they must be combined with the terminal modules as follows:

- Standard: 1 × PS on TM-PS-A UC
- Redundancy: 1 × PS on TM-PS-A UC (left) plus 1 × PS on TM-PS-B UC (right)

Power supply modules are available for supplies of 24 V DC and 120/230 V AC.

The operating state of the power supply modules is indicated by two LEDs on the IM 152 interface module (one for each module).

Ordering data

PS 24 V DC power supply module for ET 200iSP

Article No.

6ES7138-7EA01-0AA0

PS 120/230 V AC power supply module for ET 200iSP

6ES7138-7EC00-0AA0

Article No.

TM-PS-A UC terminal module

For standard operation

6ES7193-7DA20-0AA0

TM-PS-B UC terminal module

Additional terminal module for redundant operation

6ES7193-7DB20-0AA0

Technical specifications

Article number	6ES7138-7EA01-0AA0 ET200iSP, POWER SUPPLY MODULE	6ES7138-7EC00-0AA0 ET200iSP, POWER SUPPLY MOD. AC120/230V
Supply voltage		
Rated value (DC)	24 V	
Rated value (AC)		230 V; 120/230 V AC
Reverse polarity protection	Yes	
Line frequency		
• permissible range, lower limit		47 Hz
• permissible range, upper limit		63 Hz
Input current		
from supply voltage L+, max.	4 A	
from supply voltage L1, max.		1.04 A; at rated voltage 230 VAC:0.45A at rated voltage 120 VAC:0.75A
Interrupts/diagnostics/ status information		
Status indicator	Yes	Yes
Alarms	No	No
Diagnoses		
• Diagnostic information readable	Yes; via IM 152	Yes; via IM 152
Diagnostics indication LED		
• Group error SF (red)	No	No
Potential separation		
primary/secondary	Yes	Yes
between supply voltage and electronics	Yes	No

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Power supply unit**Technical specifications**

Article number	6ES7138-7EA01-0AA0 ET200ISP, POWER SUPPLY MODULE	6ES7138-7EC00-0AA0 ET200ISP, POWER SUPPLY MOD. AC120/230V
Standards, approvals, certificates		
CE mark	CE 0344	CE 0344
UKCA mark	DEKRA 21UKEX0027 Importer UK: Siemens plc Manchester M20 2UR	DEKRA 21UKEX0033 Importer UK: Siemens plc Manchester M20 2UR
BIS	Yes	Yes
Use in hazardous areas		
• ATEX marking	II 2 G Ex db eb [ib] IIC T4 Gb I M2 Ex db eb [ib] I Mb	
Dimensions		
Width	60 mm	60 mm
Height	190 mm	190 mm
Depth	136.5 mm	136.5 mm
Weights		
Weight, approx.	2 700 g	2 700 g

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Interface modules

Overview



The IM 152 interface module realizes the connection of the ET 200iSP to a PROFINET network with an intrinsically safe multimode glass fiber-optic cable up to 100 Mbps or to PROFIBUS DP with intrinsically safe RS 485-iS transmission technology for transfer rates of up to 1.5 Mbps. A redundant connection is also possible. In this case, the ET 200iSP is connected via two interface modules to two redundant segments of a high-availability automation system (PROFINET R1 redundancy or PROFIBUS redundancy). Alternatively, the S2 redundancy function and the setup of fail-safe MRP rings is possible with PROFINET.

The IM 152 is plugged onto a special terminal module (to be ordered separately). The following terminal modules are available:

- TM-IM/IM terminal module for two interface modules (for device redundancy)
- TM-IM/EM60 terminal module for one interface module and one watchdog, reserve or electronic module (except 2 DQ relay)
 - with blue screw-type or spring-loaded terminals for hazardous environments
 - with black screw-type terminals for non-hazardous environments

Tasks of the IM 152-1PN interface module

- Connection of ET 200iSP to the intrinsically safe, optical PROFINET network
- Autonomous communication with the host automation system
- Preparation of data for the fitted electronic modules
- Backup of electronic module parameters
- Time stamping of digital process signals with an accuracy of 20 ms

Tasks of the IM 152-1DP interface module

- Connection of ET 200iSP to the intrinsically safe PROFIBUS DP
- Autonomous communication with the host automation system
- Preparation of data for the fitted electronic modules
- Backup of electronic module parameters
- Time stamping of digital process signals with an accuracy of 20 ms

The maximum address space of the interface module is 244 bytes for inputs, and 244 bytes for outputs.

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Interface modules

Ordering data	Article No.	Accessories	Article No.
ET 200iSP IM 152-1DP interface module	6ES7152-1AA00-0AB0	SFP transceiver Ex Spare part for IM 152-1PN, multimode glass fiber-optic cable, LC, 50/125 µm and 62.5/125 µm	A5E51793919
ET 200iSP IM 152-1PN interface module	6ES7152-1BA00-0AB0	PROFIBUS connection plug with selectable terminating resistor For connection of IM 152-1DP to PROFIBUS DP with RS 485-IS transmission technology	6ES7972-0DA60-0XA0
ET 200iSP TM-IM/EM60 terminal module For an IM 152 and a watchdog, reserve or electronic module (except 2 DQ relay), including termination module - For hazardous environments - TM-IM/EM60S (blue screw-type terminals) - TM-IM/EM60C (blue spring-loaded terminals) - For non-hazardous environments - TM-IM/EM60S (black screw-type terminals)	6ES7193-7AA00-0AA0	RS 485-IS coupler Isolating transformer for coupling PROFIBUS DP segments with RS 485 and RS 485-IS transmission technology	6ES7972-0AC80-0XA0
	6ES7193-7AA10-0AA0	Labeling sheet DIN A4, perforated, each consisting of 10 sheets of 30 strips each for electronic modules and 20 strips each for IM 152	6ES7193-7BH00-0AA0 6ES7193-7BB00-0AA0
	6ES7193-7AA20-0AA0	S7-300 DIN rails 585 mm long, suitable for assembly of ET 200iSP in a 650 mm wide wall box 885 mm long, suitable for assembly of ET 200iSP in a 950 mm wide wall box	
ET 200iSP TM-IM/IM terminal module For two IM 152 modules (redundant operation), including termination module	6ES7193-7AB00-0AA0		6ES7390-1AF85-0AA0 6ES7390-1AJ85-0AA0

Technical specifications

Article number	6ES7193-7AA00-0AA0 ET200iSP, TERM.-MOD. TM-IM/EM60S, SCREW	6ES7193-7AA10-0AA0 ET200iSP, TERM.-MOD. TM-IM/EM60C, SPRING	6ES7193-7AA20-0AA0 ET200iSP, TERM.-MOD. TM-IM/EM60S	6ES7193-7AB00-0AA0 ET200iSP, TERM.-MOD. TM-IM/IM F. TWO IM
Standards, approvals, certificates				
CE mark	CE 0344	CE 0344	CE 0344	CE 0344
UKCA mark	DEKRA 21UKEX0032 Importer UK: Siemens plc Manchester M20 2UR	DEKRA 21UKEX0032 Importer UK: Siemens plc Manchester M20 2UR		DEKRA 21UKEX0032 Importer UK: Siemens plc Manchester M20 2UR
Use in hazardous areas				
• ATEX marking	II 2 G (1) G Ex eb [ia Ga/ib] IIC T4 Gb II 2 G (1) D Ex eb [ia IIIC Da] IIC T4 Gb I M2 Ex eb [ia/ib] I Mb	II 2 G (1) G Ex eb [ia Ga/ib] IIC T4 Gb II 2 G (1) D Ex eb [ia IIIC Da] IIC T4 Gb I M2 Ex eb [ia/ib] I Mb		
Dimensions				
Width	60 mm	60 mm	60 mm	60 mm
Height	190 mm	190 mm	190 mm	190 mm
Depth	52 mm	52 mm	52 mm	52 mm
Weights				
Weight, approx.	235 g	235 g	235 g	195 g

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Digital electronic modules

Overview



Digital input modules

- 8-channel digital input module DI NAMUR EEx i, for evaluation of NAMUR sensors, connected and non-connected contacts, as well as for use as counter or frequency meter
Parameterizable connections:
 - NAMUR sensor on/off
 - NAMUR changeover contact
 - Single contact connected (mechanical NO contact)
 - Changeover contact connected (mechanical changeover contact)
 - Single contact non-connected (mechanical NO contact with single contact)
 - Changeover contact non-connected (mechanical changeover contact)
 - Counting function: optional use of 2 channels for recording counter pulses or for frequency measurement
 - Short-circuit and wire-break monitoring

Digital output modules

- 4-channel digital output modules DQ EEx i, 23.1 V DC/20 mA, 17.4 V DC/27 mA, 17.4 V DC/40 mA or 25.5 V DC/22 mA, with external actuator switch-off via High or Low signal (H/L switch-off)
 - Load-free switching of outputs via external intrinsically safe signal
 - Power boosting through parallel connection of two outputs for one actuator with 4 DQ 17.4 V DC/27 mA or 4 DQ 17.4 V DC/40 mA
 - Short-circuit and wire-break monitoring
- 2-channel digital output module DQ Relay EEx e, e.g. for switching solenoid valves, DC contactors or signaling lamps
 - Can be plugged onto TM-RM/RM terminal module
 - Output current up to 2 A with 60 V UC for each of the two relay outputs
 - Installation up to Ex zone 1
 - Intrinsically safe and non-intrinsically safe signals can be mixed in a station

Extra functions

Actuator shutdown function of the 4 DQ EEx i modules

The 4 DQ EEx i modules are equipped with a shutdown function. This permits implementation of an external actuator switch-off independent of the automation system (controller).

As soon as the intrinsically safe switch-off signal (High or Low) is present at the actuator switch-off input of the electronic module, its outputs are deactivated.

You can also combine several DQ modules into a switch-off group. The intrinsically safe power supply for the switch-off device is either via the watchdog module or a separate intrinsically safe source.

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Ordering data

Article No.

Article No.

Digital input modules

Digital input modules EEx i

8 DI NAMUR

For evaluation of NAMUR sensors, connected/non-connected contacts, as well as for recording count pulses or measuring frequencies

- 8 × NAMUR (NAMUR sensor on/off, NAMUR changeover contact) or connected/non-connected inputs (single/changeover contact)
- 2 channels optionally usable as counters (max. 5 kHz) or frequency meters (1 Hz ... 5 kHz)
- Time tagging 20 ms, rising or falling edge
- Wire-break monitoring
- Short-circuit monitoring
- Sensor power supply monitoring
- Flutter monitoring

6ES7131-7RF00-0AB0

Digital output modules

Digital output modules EEx i with

H-switch-off

(external actuator disconnection via H-signal); for switching of solenoid valves, DC relays, indicator lights, actuators

4 DQ DC 23.1 V/20 mA

- 4 channels with 20 mA each
- Short-circuit monitoring
- Wire-break monitoring
- Configurable connection of substitute value in the event of CPU failure
- Load-free switching of outputs via external intrinsically safe signal

6ES7132-7RD01-0AB0

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Digital electronic modules

Ordering data	Article No.		Article No.
4 DQ DC 17.4 V/27 mA 4 channels with 27 mA each or 2 outputs connected in parallel with 54 mA each - Short-circuit monitoring - Wire-break monitoring - Configurable connection of substitute value in the event of CPU failure - Load-free switching of outputs via external intrinsically safe signal	6ES7132-7RD11-0AB0	Digital output modules EEx e For switching of solenoid valves, DC contactors or indicator lights	
4 DQ DC 17.4 V/40 mA 4 channels with 40 mA each or 2 outputs connected in parallel with 80 mA each - Short-circuit monitoring - Wire-break monitoring - Configurable connection of substitute value in the event of CPU failure - Load-free switching of outputs via external intrinsically safe signal	6ES7132-7RD22-0AB0	2 DQ Relay, 60 V UC, 2 A - Can be plugged onto TM-RM/RM terminal module - Output current up to 2 A with 60 V UC for each of the two relay outputs - Installation up to Ex zone 1 - Configurable connection of substitute value in the event of CPU failure	6ES7132-7HB00-0AB0
4 DQ DC 23.1 V/20 mA 4 channels with 20 mA each - Short-circuit monitoring - Wire-break monitoring - Configurable connection of substitute value in the event of CPU failure - Load-free switching of outputs via external intrinsically safe signal	6ES7132-7GD00-0AB0	Terminal modules ET 200iSP TM-EM/EM60 terminal module For two modules (reserve module, watchdog module and all electronic modules except 2 DQ relays can be plugged in) - For hazardous environments - TM-EM/EM60S (blue screw-type terminals) - TM-EM/EM60C (blue spring-loaded terminals) - For non-hazardous environments - TM-EM/EM60S (black screw-type terminals)	6ES7193-7CA00-0AA0 6ES7193-7CA10-0AA0 6ES7193-7CA20-0AA0
4 DQ DC 17.4 V/27 mA 4 channels with 27 mA each or 2 outputs connected in parallel with 54 mA each - Short-circuit monitoring - Wire-break monitoring - Configurable connection of substitute value in the event of CPU failure - Load-free switching of outputs via external intrinsically safe signal	6ES7132-7GD10-0AB0	ET 200iSP TM-RM/RM 60 terminal module For two modules (electronic module 2 DQ Relay and reserve module can be plugged in) TM-RM/RM60S (screw-type terminals)	6ES7193-7CB00-0AA0
4 DQ DC 17.4 V/40 mA 4 channels with 40 mA each or 2 outputs connected in parallel with 80 mA each - Short-circuit monitoring - Wire-break monitoring - Configurable connection of substitute value in the event of CPU failure - Load-free switching of outputs via external intrinsically safe signal	6ES7132-7GD21-0AB0	Accessories Reserve module For any electronic module Labeling sheet DIN A4, perforated, each consisting of 10 sheets of 30 strips each for electronic modules and 20 strips each for IM 151 - Petrol - Yellow	6ES7138-7AA00-0AA0 6ES7193-7BH00-0AA0 6ES7193-7BB00-0AA0
4 DQ DC 25.5 V/22 mA¹⁾ 4 channels with 22 mA each - Short-circuit monitoring - Wire-break monitoring - Configurable connection of substitute value in the event of CPU failure - Load-free switching of outputs via external intrinsically safe signal	6ES7132-7GD30-0AB0	Labels, inscribed For slot numbering, label size H x W (in mm): 5 x 7 204 labels, for slots 1 to 20 204 labels, for slots 1 to 40	8WA8361-0AB 8WA8361-0AC
		Labels, blank 136 labels for slot numbering, label size H x W (in mm): 5 x 7	8WA8348-2AY
		S7-300 DIN rails 585 mm long, suitable for assembly of ET 200iSP in a 650 mm wide wall box 885 mm long, suitable for assembly of ET 200iSP in a 950 mm wide wall box	6ES7390-1AF85-0AA0 6ES7390-1AJ85-0AA0

¹⁾ Can be used with SIMATIC PCS 7 V7.1+SP2 or higher

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Digital electronic modules

Technical specifications

Article number	6ES7132-7RD01-0AB0 ET200iSP, EL-MOD., 4DO, DC 23,1V, 20MA	6ES7132-7RD11-0AB0 ET200iSP, EL-MOD., 4DO, DC 17,4V, 27MA	6ES7132-7RD22-0AB0 ET200iSP, EL-MOD., 4DO, DC 17.4V, 40MA
General information			
Product type designation	4DQ 23.1 V DC/20 mA	4DQ 17.4 V DC/27 mA	4DQ 17.4 V DC/40 mA
Digital outputs			
Type of digital output	Transistor	Transistor	Transistor
Number of digital outputs	4; additionally 1 intrinsically-safe input for H shutdown	4; additionally 1 intrinsically-safe input for H shutdown	4; additionally 1 intrinsically-safe input for H shutdown
Short-circuit protection	Yes	Yes	Yes
No-load voltage U_{ao} (DC)	23.1 V	17.4 V	17.4 V
Internal resistor R_i	275 Ω	150 Ω	167 Ω
Trend key points E			
• Voltage U_e (DC)	17.6 V	13.3 V	10.7 V
• Current I_e	20 mA	27 mA	40 mA; 80 mA when outputs connected in parallel
Output current			
• for signal "1" rated value	0.02 A	0.027 A	0.04 A
Output delay with resistive load			
• "0" to "1", max.	2 ms	2 ms	2 ms
• "1" to "0", max.	1.5 ms	1.5 ms	1.5 ms
Parallel switching of two outputs			
• for uprating	No; for Ex reasons not possible; nor for predecessor	Yes	Yes
Switching frequency			
• with resistive load, max.	100 Hz	100 Hz	100 Hz
• with inductive load, max.	2 Hz	2 Hz	2 Hz
Interrupts/diagnostics/status information			
Diagnostics function	Yes	Yes	
Alarms			
• Diagnostic alarm	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable
• Hardware interrupt	No	No	No
Diagnoses			
• Diagnostic information readable	Yes	Yes	Yes
• Wire-break	Yes; $R > 10 \text{ kohms}$, $I < 100 \mu\text{A}$	Yes	Yes; $R > 10 \text{ kohms}$, $I < 100 \mu\text{A}$
• Short-circuit	Yes; $R < 80 \text{ Ohm}$ (one output), $R < 40 \text{ Ohm}$ (outputs connected in parallel)	Yes	Yes; $R < 80 \text{ Ohm}$ (one output), $R < 40 \text{ Ohm}$ (outputs connected in parallel)
Diagnostics indication LED			
• Group error SF (red)	Yes	Yes	Yes
• Status indicator digital output (green)	Yes	Yes	Yes; Per channel
Ex(i) characteristics			
maximum values for connecting terminals for gas group IIC			
• U_o (no-load voltage), max.	25.6 V	19.4 V	19.4 V
• I_o (short-circuit current), max.	96 mA	132 mA	118 mA
• P_o (power output), max.	0.61 W	0.64 W	0.57 W
• C_o (permissible external capacity), max.	98 nF	0.23 μF	0.24 μF
• L_o (permissible external inductivity), max.	3 mH	1.9 mH	2.5 mH
• U_i (intrinsically safe input voltage), max.	28 V; switch input circuit	28 V; switch input circuit	28 V; switch input circuit
• P_i (intrinsically safe input power), max.	1.2 W; switch input circuit	1.2 W; switch input circuit	1.2 W; switch input circuit
• C_i (internal capacity), max.	3 nF; switch input circuit	3 nF; switch input circuit	3 nF; switch input circuit

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Digital electronic modules**Technical specifications**

Article number	6ES7132-7RD01-0AB0 ET200iSP, EL-MOD., 4DO, DC 23,1V, 20MA	6ES7132-7RD11-0AB0 ET200iSP, EL-MOD., 4DO, DC 17,4V, 27MA	6ES7132-7RD22-0AB0 ET200iSP, EL-MOD., 4DO, DC 17.4V, 40MA
Potential separation			
Potential separation digital outputs • between the channels and backplane bus	Yes	Yes	Yes
Standards, approvals, certificates			
CE mark	CE 0344	CE 0344	CE 0344
UKCA mark	DEKRA 21UKEX0085 Importer UK: Siemens plc Manchester M20 2UR	DEKRA 21UKEX0085 Importer UK: Siemens plc Manchester M20 2UR	DEKRA 21UKEX0085 Importer UK: Siemens plc Manchester M20 2UR
Highest safety class achievable in safety mode • SIL acc. to IEC 61508	No		No
Use in hazardous areas • ATEX marking	II 2 G (1) G Ex ib [ia Ga] IIC T4 Gb II 2 G (1) D Ex ib [ia IIIC Da] IIC T4 Gb I M2 Ex ib [ia] I Mb	II 2 G (1) G Ex ib [ia Ga] IIC T4 Gb II 2 G (1) D Ex ib [ia IIIC Da] IIC T4 Gb I M2 Ex ib [ia] I Mb	II 2 G (1) G Ex ib [ia Ga] IIC T4 Gb II 2 G (1) D Ex ib [ia IIIC Da] IIC T4 Gb I M2 Ex ib [ia] I Mb
Dimensions			
Width	30 mm	30 mm	30 mm
Height	129 mm	129 mm	129 mm
Depth	136.5 mm	136.5 mm	136.5 mm
Weights			
Weight, approx.	255 g	255 g	255 g

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Analog electronic modules

Overview



Analog input modules

- 4-channel analog input module AI 2 WIRE HART EEx i for current measurement in the range 4 to 20 mA, suitable for connection of 2-wire transmitters (with/without HART functionality)
 - Resolution 12 bit + sign
 - Max. load of transmitter 750 Ω
 - Short-circuit and wire break monitoring
- 4-channel analog input module AI 4 WIRE HART EEx i for current measurement in the range 0/4 to 20 mA, suitable for connection of 4-wire transmitters (with/without HART functionality)
 - Resolution 12 bit + sign
 - Max. load of transmitter 750 Ω
 - Wire break monitoring

- 4-channel analog input module AI RTD EEx i for resistance testing and for temperature measurement by Pt100/Ni100 resistance thermometer
 - Resolution 15 bit + sign
 - 2, 3, or 4-wire connection possible
 - Resistance measurements 600 Ω absolute and 1 000 Ω absolute
 - Wire break monitoring
- 4-channel analog input module AI TC EEx i for thermoelectric EMF measurements and for temperature measurement by thermocouple, type B, E, N, J, K, L, S, R, T, U
 - Resolution 15 bit + sign
 - Internal temperature compensation possible using TC sensor module (included in scope of delivery of module)
 - External temperature compensation by means of a temperature value acquired at an analog module of the same ET 200iSP station
 - Wire break monitoring

Analog output modules

- 4-channel analog output module AO I HART EEx i for output of current signals in the range 0/4 to 20 mA to field devices (with/without HART functionality)
 - Resolution 14 bit
 - Parameterizable substitute value in case of CPU failure
 - Short-circuit and wire break monitoring

Extra functions

Temperature compensation

A TC sensor module for internal temperature compensation is provided with the 4 AI TC module, and is fitted on the corresponding terminals of the associated terminal module.

External temperature compensation is possible via a Pt100 on a 4 AI RTD module.

Ordering data

Article No.

Article No.

Analog input modules

EEx i analog input modules

4 AI I 2 WIRE HART

For measuring currents with 2-wire transmitters with/without HART functionality

- 4 x 4 ... 20 mA, HART, 2-wire transmitter
- Transmitter load: max. 750 Ω
- Resolution 12 bit + sign
- Short-circuit monitoring
- Wire-break monitoring

6ES7134-7TD00-0AB0

4 AI I 4 WIRE HART

For measuring currents with 4-wire transmitters with/without HART functionality

- 4 x 0/4 ... 20 mA, HART, 4-wire transmitter
- Transmitter load: max. 750 Ω
- Resolution 12 bit + sign
- Wire-break monitoring

6ES7134-7TD50-0AB0

4 AI RTD

For measuring resistances as well as for temperature measurements with resistance thermometers

- 4 x RTD, resistance thermometer Pt100/Ni100
- 2, 3, 4-wire
- Resolution 15 bit + sign
- Short-circuit monitoring
- Wire-break monitoring

6ES7134-7SD51-0AB0

4 AI TC

For thermoelectric EMF measurements as well as for temperature measurements with thermocouples

- 4 x TC (thermocouples)
- Type B [PtRh-PtRh]
- Type N [NiCrSi-NiSi]
- Type E [NiCr-CuNi]
- Type R [PtRh-Pt]
- Type S [PtPh-Pt]
- Type J [Fe-CuNi]
- Type L [Fe-CuNi]
- Type T [Cu-CuNi]
- Type K [NiCr-Ni]
- Type U [Cu-CuNi]
- Resolution 15 bit + sign
- Internal compensation of reference junction temperature possible using TC sensor module (included in scope of supply of module)
- External temperature compensation via Pt100, connected to RTD module of same ET 200iSP station
- Wire-break monitoring

6ES7134-7SD00-0AB0

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Analog electronic modules

Ordering data	Article No.	Article No.
Analog output modules		
Analog output modules EEx i		
4 AO I HART For output of currents to field devices with/without HART functionality 4 × 0/4 ... 20 mA, HART (max. load 750 Ω) - Resolution 14-bit - Short-circuit monitoring - Wire-break monitoring - Parameterizable substitute value in case of CPU failure	6ES7135-7TD00-0AB0	
Terminal modules		
ET 200iSP TM-EM/EM60 terminal module For two modules (reserve module, watchdog module and all electronic modules except 2 DQ relays can be plugged in) - For hazardous environments - TM-EM/EM60S (blue screw-type terminals) - TM-EM/EM60C (blue spring-loaded terminals) - For non-hazardous environments - TM-EM/EM60S (black screw-type terminals)	6ES7193-7CA00-0AA0 6ES7193-7CA10-0AA0 6ES7193-7CA20-0AA0	Accessories Reserve module For any electronic module 6ES7138-7AA00-0AA0 Labeling sheet DIN A4, perforated, each consisting of 10 sheets of 30 strips each for electronic modules and 20 strips each for IM 151 - Petrol - Yellow 6ES7193-7BH00-0AA0 6ES7193-7BB00-0AA0 S7-300 DIN rails 585 mm long, suitable for assembly of ET 200iSP in a 650 mm wide wall box 885 mm long, suitable for assembly of ET 200iSP in a 950 mm wide wall box 6ES7390-1AF85-0AA0 6ES7390-1AJ85-0AA0

Technical specifications

Article number	6ES7135-7TD00-0AB0 ET200iSP, EL-MOD., 4 AO, 4-20MA, HART	Article number	6ES7135-7TD00-0AB0 ET200iSP, EL-MOD., 4 AO, 4-20MA, HART
General information		Diagnoses	
Product type designation	4AQ I HART	- Diagnostic information readable - Wire-break - Short-circuit	Yes Yes; I load > 1 mA Yes; I load > 1 mA
Analog outputs		Diagnostics indication LED	
Number of analog outputs	4	Group error SF (red)	Yes
Cycle time (all channels) max.	3.6 ms	Ex(i) characteristics	
Output ranges, current		maximum values for connecting terminals for gas group IIC	
0 to 20 mA 4 mA to 20 mA	Yes Yes	- U_o (no-load voltage), max. - I_o (short-circuit current), max. - P_o (power output), max. - C_o (permissible external capacity), max. - L_o (permissible external inductivity), max.	27.6 V 88.2 mA 0.61 mW 83 nF 3 mH
Connection of actuators		Potential separation	
for current output two-wire connection	Yes	Potential separation analog outputs	
Load impedance (in rated range of output)		between the channels and backplane bus	Yes
with current outputs, max.	750 Ω	Standards, approvals, certificates	
Cable length		CE mark	CE 0344
shielded, max.	500 m	UKCA mark	DEKRA 21UKEX0091 Importer UK: Siemens plc Manchester M20 2UR
Analog value generation for the outputs		Use in hazardous areas	
Integration and conversion time/resolution per channel		ATEX marking	II 2 G (1) G Ex ib [ia Ga] IIC T4 Gb II 2 G (1) D Ex ib [ia IIIC Da] IIC T4 Gb I M2 Ex ib [ia] I Mb
Resolution with overrange (bit including sign), max.	14 bit	Dimensions	
Settling time		Width	30 mm
- for resistive load - for capacitive load - for inductive load	4 ms 40 ms 40 ms	Height	129 mm
Errors/accuracies		Depth	136.5 mm
Basic error limit (operational limit at 25 °C)		Weights	
Current, relative to output range, (+/-)	0.1 %	Weight, approx.	265 g
Interrupts/diagnostics/status information			
Substitute values connectable	Yes		
Alarms			
Diagnostic alarm	Yes		

I/O systems

SIMATIC ET 200 systems for the control cabinet

SIMATIC ET 200iSP

Safety-related electronic modules

Overview



The electronic modules of the SIMATIC ET 200iSP distributed I/O system equipped with safety functions can be used together with the safety-related automation systems (controllers) for the implementation of safety applications. The input modules record the process signals, evaluate them, and prepare them for additional processing by the automation system. The output modules convert the safety-related signals output by the automation systems so that they are suitable for controlling the connected actuators.

F-digital input modules

- 8 F-DI Ex NAMUR
 - Safety-related digital input module for evaluating the signals from IEC 60947-5-6/NAMUR sensors and connected/non-connected mechanical contacts in hazardous and non-hazardous areas
 - SIL3/Cat.3/PLe with 8 inputs (1-channel/1oo1 evaluation) or 4 inputs (2-channel/1oo2 evaluation)
 - 8 short-circuit-proof sensor supplies (8 V DC) for 1 channel each
 - Inputs and sensor supplies electrically isolated from power bus and backplane bus
 - Diagnostics evaluation (deactivated for non-connected mechanical contacts)
 - Internal diagnostics buffer
 - Programmable diagnostics interrupt
 - Supports time stamping
 - Channel-selective passivation
 - Firmware update using HW Config possible
 - Exclusively for safety mode
 - LED displays for safety mode, group errors and channel status/fault

F-digital output modules

- 4 F-DO Ex DC 17.4 V/40 mA
 - Safety-related digital output module for controlling actuators in hazardous and non-hazardous areas, e.g. solenoid valves, DC current relays or indicator lights
 - SIL3/Cat.3/PLe with 4 outputs, switching to P/P potential
 - Electrical isolation from power bus and backplane bus
 - Rated load voltage 17.4 V DC
 - Max. output current 40 mA
 - Performance enhancement through parallel connection of two digital outputs for one actuator
 - Short-circuit, overload and wire-break monitoring
 - Configurable diagnostics
 - Internal diagnostics buffer
 - Programmable diagnostics interrupt
 - Channel-selective passivation
 - Firmware update using HW Config possible
 - Exclusively for safety mode
 - LED displays for safety mode, group errors and channel status/fault

F-analog input modules

- 4 F-AI Ex HART (0 ... 20 mA or 4 ... 20 mA)
 - Safety-related digital input module for evaluating the signals from current simulators in hazardous and non-hazardous areas, e.g. 2-wire transmitters and HART field devices
 - SIL3/Cat.3/PLe with 4 inputs of one module (1-channel/1oo1 evaluation) or 4 inputs of two modules (2-channel/1oo2 evaluation)
 - Measuring ranges: 0 ... 20 mA or 4 ... 20 mA
 - Resolution 15 bit + sign
 - HART communication in measuring range 4 ... 20 mA
 - 4 short-circuit-proof sensor supplies (min. 12 V DC; max. 26 V DC) for 1 channel each
 - Inputs and sensor supplies electrically isolated from backplane bus
 - Configurable diagnostics
 - Programmable diagnostics interrupt
 - Internal diagnostics buffer
 - Firmware update using HW Config possible
 - Exclusively for safety mode
 - LED displays for safety mode, group errors, channel faults and HART status per channel

I/O systems

SIMATIC ET 200 systems for the control cabinet

SIMATIC ET 200iSP

Safety-related electronic modules

Ordering data	Article No.			Article No.
Safety-related electronic modules			Terminal modules	
F-digital input modules			ET 200iSP TM-EM/EM60 terminal module	
8 F-DI Ex NAMUR	6ES7138-7FN00-0AB0		For two modules (reserve module, watchdog module and all electronic modules except 2 DQ relays can be plugged in)	
For evaluating the signals from IEC 60947-5-6/NAMUR sensors and connected/non-connected mechanical contacts in hazardous and non-hazardous areas			• For hazardous environments	6ES7193-7CA00-0AA0
• SIL3/Cat.3/PLe with 8 inputs (1-channel/1001 evaluation) or 4 inputs (2-channel/1002 evaluation)			- TM-EM/EM60S (blue screw-type terminals)	6ES7193-7CA10-0AA0
			- TM-EM/EM60C (blue spring-loaded terminals)	
F-digital output modules			• For non-hazardous environments	6ES7193-7CA20-0AA0
4 F-DO Ex 17.4 V DC/40 mA	6ES7138-7FD00-0AB0		- TM-EM/EM60S (black screw-type terminals)	
For controlling actuators in hazardous and non-hazardous areas, e.g. solenoid valves, DC current relays or indicator lights			Accessories	
• SIL3/Cat.3/PLe with 4 outputs, switching to P/P potential			Reserve module	6ES7138-7AA00-0AA0
			For any electronic module	
F-analog input modules			Labeling sheet	
4 F-AI Ex HART (0 ... 20 mA or 4 ... 20 mA)	6ES7138-7FA00-0AB0		DIN A4, perforated, each consisting of 10 sheets of 30 strips each for electronic modules and 20 strips each for IM 151	
For evaluating the signals from current simulators in hazardous and non-hazardous areas, e.g. 2-wire transmitters and HART field devices			• Petrol	6ES7193-7BH00-0AA0
• SIL3/Cat.3/PLe with 4 inputs of one module (1-channel/1001 evaluation) or 4 inputs of two modules (2-channel/1002 evaluation)			• Yellow	6ES7193-7BB00-0AA0
• Resolution 15 bit + sign			S7-300 DIN rails	
• HART communication in measuring range 4 ... 20 mA			• 585 mm long, suitable for assembly of ET 200iSP in a 650 mm wide wall box	6ES7390-1AF85-0AA0
			• 885 mm long, suitable for assembly of ET 200iSP in a 950 mm wide wall box	6ES7390-1AJ85-0AA0

I/O systems

SIMATIC ET 200 systems for the control cabinet

SIMATIC ET 200iSP

Safety-related electronic modules

Technical specifications

Article number	6ES7138-7FN00-0AB0 ET200iSP, 8F-DI NAMUR EX, FAILSAFE
General information	
Product type designation	8F-DI ExNAMUR
Encoder supply	
Number of outputs	8
Digital inputs	
Number of digital inputs	8
Input current	
• for signal "0", max. (permissible quiescent current)	1.2 mA
• for signal "1", min.	2.1 mA
• for signal "1", typ.	9.5 mA
Encoder	
Number of connectable encoders, max.	8
Connectable encoders	
• NAMUR encoder	Yes
Interrupts/diagnostics/ status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes; Parameterizable
• Hardware interrupt	No
Diagnoses	
• Diagnostic information readable	Yes
• Wire-break	Yes; NAMUR encoders or single contact with 10 kOhm parallel resistor
• Short-circuit	Yes; R load < 150 ohms with NAMUR sensor/sensor and NAMUR changeover contact/sensor to DIN 19234
Diagnostics indication LED	
• Group error SF (red)	Yes
Potential separation	
Potential separation digital inputs	
• between the channels and backplane bus	Yes
Standards, approvals, certificates	
CE mark	Yes
Highest safety class achievable in safety mode	
• Performance level according to ISO 13849-1	PLe
• SIL acc. to IEC 61508	SIL 3
Use in hazardous areas	
• ATEX marking	II 2 G (1) GD Ex ib[ia Ga][ia IIIC Da] IIC T4 GB and I M2 Ex ib[ia Ma] I Mb
Dimensions	
Width	30 mm
Height	129 mm
Depth	136.5 mm
Weights	
Weight, approx.	288 g

Article number	6ES7138-7FD00-0AB0 ET200iSP, 4F-DO 40MA EX, FAILSAFE
General information	
Product type designation	4F-DQ Ex(i) 17.4 V DC/40 mA
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	4
Short-circuit protection	Yes
Controlling a digital input	No
No-load voltage U _{ao} (DC)	17.4 V
Internal resistor R _i	167 Ω
Load resistance range	
• lower limit	270 Ω
• upper limit	18 kΩ
Trend key points E	
• Voltage U _e (DC)	10.7 V
• Current I _e	40 mA
Output voltage	
• for signal "1", max.	17.4 V
Output current	
• for signal "0" residual current, max.	10 μA
Parallel switching of two outputs	
• for uprating	Yes
• for redundant control of a load	No
Switching frequency	
• with resistive load, max.	30 Hz
• with inductive load, max.	2 Hz
Interrupts/diagnostics/ status information	
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes; Parameterizable
Diagnoses	
• Diagnostic information readable	Yes
• Wire-break	Yes
• Short-circuit	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
• Status indicator digital output (green)	Yes
Potential separation	
Potential separation digital outputs	
• between the channels and backplane bus	Yes
Standards, approvals, certificates	
CE mark	Yes
Highest safety class achievable in safety mode	
• Performance level according to ISO 13849-1	PLe
• SIL acc. to IEC 61508	SIL 3
Dimensions	
Width	30 mm
Height	129 mm
Depth	136.5 mm
Weights	
Weight, approx.	285 g

I/O systems

SIMATIC ET 200 systems for the control cabinet
SIMATIC ET 200iSP

Watchdog module

Overview



The watchdog module has two fundamental functions:

- Monitoring of the ET 200iSP remote I/O station for hardware failures (hardware lifebeat); external, applicative failure monitoring is also possible via an I/O address area of the module
- Intrinsically-safe power supply for external actuator switch-off

The watchdog module must be plugged onto a terminal module (order separately). The following terminal modules are suitable for this:

- TM-IM/EM60 terminal modules for one interface module and one watchdog, reserve or electronics module (for versions, see Interface module section)
- TM-EM/EM60 terminal modules with two slots for watchdog module, reserve module or electronics modules (except 2 DO relay):
 - with blue screw-type or spring-loaded terminals for hazardous environments
 - with black screw-type terminals for non-hazardous environments

The first slot directly next to the interface module is provided for the watchdog module.

Ordering data

Article No.

Watchdog module

Watchdog module

For failure monitoring and for the intrinsically safe power supply of an external actuator disconnection

6ES7138-7BB00-0AB0

Terminal modules

ET 200iSP TM-EM/EM60

terminal module

For two modules (reserve module, watchdog module and all electronic modules except 2 DQ relays can be plugged in)

- For hazardous environments
 - TM-EM/EM60S (blue screw-type terminals)
 - TM-EM/EM60C (blue spring-loaded terminals)
- For non-hazardous environments
 - TM-EM/EM60S (black screw-type terminals)

6ES7193-7CA00-0AA0

6ES7193-7CA10-0AA0

6ES7193-7CA20-0AA0

Accessories

Labeling sheet

DIN A4, perforated, each consisting of 10 sheets of 30 strips each for electronic modules and 20 strips each for IM 151

- Petrol
- Yellow

6ES7193-7BH00-0AA0

6ES7193-7BB00-0AA0

Technical specifications

Article number	6ES7138-7BB00-0AB0 ET 200iSP, WATCHDOG MOD.
General information	
Product type designation	Watchdog module
Digital inputs	
Number of digital inputs	0
Interrupts/diagnostics/status information	
Diagnoses	
• Diagnostic information readable	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
• Status indicator digital input (green)	Yes
Ex(i) characteristics	
maximum values for connecting terminals for gas group IIC	
• U ₀ (no-load voltage), max.	12.7 V
• I ₀ (short-circuit current), max.	329 mA
• P ₀ (power output), max.	0.91 W
• C ₀ (permissible external capacity), max.	1 µF
• L ₀ (permissible external inductivity), max.	0.3 mH
Standards, approvals, certificates	
CE mark	CE 0344
UKCA mark	DEKRA 21UKEX0028 Importer UK: Siemens plc Manchester M20 2UR
Use in hazardous areas	
• ATEX marking	II 2 G Ex ib IIC T4 Gb I M2 Ex ib I Mb
Dimensions	
Width	30 mm
Height	129 mm
Depth	136.5 mm

I/O systems

SIMATIC ET 200 systems for the control cabinet
SIMATIC ET 200iSP

RS 485-iS coupler

Overview



Tasks of the RS 485-iS coupler

- Conversion of the electrical PROFIBUS DP RS 485 transmission technology into the intrinsically-safe RS 485-iS transmission technology with a transmission rate of 1.5 Mbps
- Required to connect intrinsically-safe PROFIBUS DP stations, e.g. ET 200iSP or devices from other vendors with Ex i DP connection
- Acts as a safety barrier
- Additional use as a repeater in the hazardous area
- Passive bus station (no configuration necessary)
- Certified according to ATEX 100a

Ordering data

RS 485-iS coupler

Isolating transformer for connection of PROFIBUS DP segments with RS 485 and RS 485-iS transmission systems

Accessories

PROFIBUS connection plug with selectable terminating resistor

For connection of IM 152 to PROFIBUS DP with RS 485-iS transmission technology

S7-300 DIN rails

Lengths:

- 160 mm
- 482 mm
- 530 mm
- 830 mm
- 2 000 mm

Article No.

6ES7972-0AC80-0XA0

6ES7972-0DA60-0XA0

6ES7390-1AB60-0AA0

6ES7390-1AE80-0AA0

6ES7390-1AF30-0AA0

6ES7390-1AJ30-0AA0

6ES7390-1BC00-0AA0

Article No.

PROFIBUS FastConnect standard cable, violet

Standard type with special design for fast mounting, 2-wire, shielded, cut-to-length

Specify length in m

Max. delivery unit 1 000 m, minimum order quantity 20 m

Preferred lengths

- 20 m
- 50 m
- 100 m
- 200 m
- 500 m
- 1 000 m

PROFIBUS FastConnect standard cable IS GP, blue

Cable type for use in potentially explosive atmospheres, with special design for fast mounting, 2-wire, shielded, cut-to-length

Specify length in m

Max. delivery unit 1 000 m, minimum order quantity 20 m

6XV1830-0EH10

6XV1830-0EN20

6XV1830-0EN50

6XV1830-0ET10

6XV1830-0ET20

6XV1830-0ET50

6XV1830-0EU10

6XV1831-2A

Technical specifications

Technical specifications - RS 485-iS coupler

Dimensions and weight

Dimensions W x H x D (mm) 80 x 125 x 130

Weight Approx. 500 g

Technical specifications - General

Degree of protection IP20

Ambient temperature - 20 ... + 60 °C

I/O systems

SIMATIC ET 200 systems for the control cabinet

SIMATIC ET 200iSP

RS 485-iS coupler**Technical specifications****Technical specifications - RS 485-iS coupler****Standards and approvals**

• PROFIBUS	IEC 61784-1:2002 Ed1 CP 3/1
• EU directive	94/9/EG (ATEX 100a)
• CENELEC	II 3 (2) G EEx nA[ib] IIC T4
• UL and CSA	Class I, Division2, Group A, B, C, D T4 Class I Zone 2, Group IIC T4 AIS Class I, Division 1, Group A, B, C, D [Aexib] IIC, Class I, Zone1, 2, Group IIC
• FM	Class I, Division2, Group A, B, C, D T4 Class I Zone 2, Group IIC T4 AIS Class I, Division 1, Group A, B, C, D [Aexib] IIC, Class I, Zone1, 2, Group IIC
• IEC	IEC61131-2, Part 2
• CE	Conforming with 89/336/EWG Conforming with 73/23/EWG
• Ship-building certification	Classification companies •ABS (American Bureau of Shipping) •BV (Bureau Veritas) •DNV (Det Norske Veritas) •GL (Germanischer Lloyd) •LRD (Lloyds Register of Shipping) •Class NK (Nippon Kaiji Kyokai)

Module-specific Data

Transfer rate on PROFIBUS DP, PROFIBUS RS 485-iS	9.6; 19.2; 45.45; 93.75; 187.5; 500 kbps 1.5 Mbps
Bus-Protocol	PROFIBUS DP

Voltages, Currents, Potentials

Rated supply voltage of RS 485-iS coupler	24 V DC (20.4 ... 28.8 V)
• Reverse polarity protection	Yes
• Voltage failure bypass	Min. 5 ms
Electrical isolation of 24 V power supply	
• to PROFIBUS DP	Yes
- tested with	500 V DC
• to PROFIBUS RS 485-iS	Yes
- tested with	AC 500 V
Current consumption RS 485-iS coupler (24 V DC), max.	150 mA
Power loss of the module, typically	3 Watts

Status, alarms, diagnostics

Status display	No
Alarms	None
Diagnostic functions	Yes
• Bus monitoring PROFIBUS DP (primary)	Yellow LED "DP1"
• Bus monitoring PROFIBUS RS 485-iS (secondary)	Yellow LED "DP2"
• Monitoring 24 V power supply	Green LED "ON"

Technical safety notice

V_{DC}	± 4.2 V
I_{SC}	± 93 mA
P_0	0.1 Watts
V_{max}	± 4.2 V
L_I	0
C_i	0
U_m	AC 250 V
T_a	-25 ... +60 °C

RS 485-iS segment

permissible cable length on a single line	RS 485-iS	DP Ex i
• 9.6 to 187.5 Kbps	1 000 m	200 m
• 500 Kbps	400 m	200 m
• 1.5 Mbps	200 m	200 m
Number of PROFIBUS DP nodes that can be connected, max.	31	16
PROFIBUS RS 485-iS bus terminator switch	integrated, can be added	

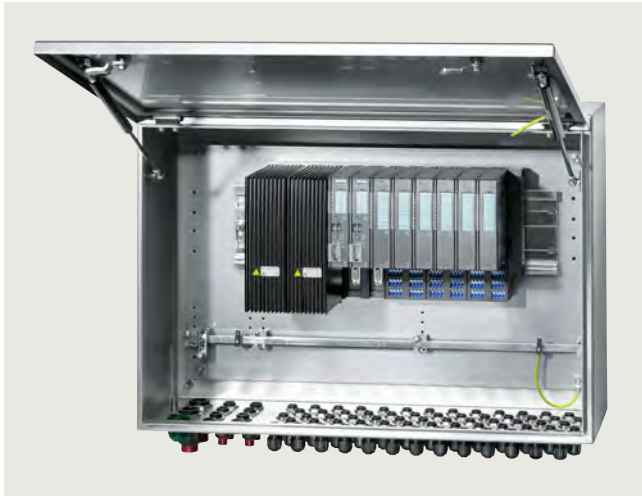
I/O systems

SIMATIC ET 200 systems for the control cabinet

SIMATIC ET 200iSP

Stainless steel wall enclosures

Design



ET 200iSP modules can also be installed in stainless steel wall enclosures designed to meet more exacting degree of protection requirements. The enclosures are available in various sizes. They comply with degree of protection IP65 and can be used in Ex zones 1 and 21.

Delivery can be an empty enclosure or include components, depending on the order.

Send your request to: cabinets.industry@siemens.com

Ordering data

Stainless steel enclosure IP65 for SIMATIC ET 200iSP	6DL2804-	■	■	■	■	■	
I/O enclosure							
Stainless steel Ex enclosure, max. IP66, with mounting plate and equipotential bonding rail, empty enclosure for installation of ET 200iSP components ¹⁾	0						
Stainless steel Ex device consisting of stainless steel enclosure with installed ET 200iSP components ²⁾	1						
Stainless steel Ex device consisting of stainless steel enclosure with installed ET 200iSP and pneumatic components ²⁾⁶⁾	2						
Device group							
Device group II, up to zone 1 (including zone 2)		A					
Device group II, up to zone 1 and zone 21 (including zone 2 and zone 22)		D					
Enclosure dimensions W × H × D (in mm)							
650 × 450 × 230, for up to 15 ET 200iSP modules			D				
950 × 450 × 230, for up to 25 ET 200iSP modules			E				
Cable entries/number							
M16 cable entries for signals, 3 rows, 39 or 66 units ³⁾ , 2 × M32 for supply voltage, 4 × M20 for bus cables					3		
M20 cable entries for signals, 3 rows, 36 or 57 units ³⁾ , 2 × M32 for supply voltage, 4 × M20 for bus cables					4		
M16 cable entries for signals, 5 rows, 65 or 110 units ³⁾ , 2 × M32 for supply voltage, 4 × M20 for bus cables					5		
M20 cable entries for signals, 5 rows, 60 or 95 units ³⁾ , 2 × M32 for supply voltage, 4 × M20 for bus cables					6		
Cable entries/material							
Cable entry in plastic, black						0	
Ambient operating temperatures: • Ex enclosure -40...+70 °C • Ex device -40 ... +xx °C ⁴⁾⁵⁾							
Cable entry in metal (nickel-plated brass)						1	
Ambient operating temperatures: • Ex enclosure -40...+70 °C • Ex device -40 ... +xx °C ⁴⁾⁵⁾							
Cable entry in plastic, blue						2	
Ambient operating temperatures: • Ex enclosure -40...+70 °C • Ex device -40 ... +xx °C ⁴⁾⁵⁾							

¹⁾ The supplied certificate is only valid for the empty enclosure.

²⁾ The supplied certificate is valid for the supplied enclosure, including the installed components.

³⁾ Number of cable entries/signals depends on enclosure dimensions

⁴⁾ Maximum temperature depends on installed components.

⁵⁾ Minus temperatures down to -40 °C when heater installed. This takes up 2 slots for ET 200iSP modules. The heating (6DL9910-8AA) must be ordered separately.

⁶⁾ Limited to enclosures with 950 mm width and M20 cable entries for signals

Note:

Depending on the cables used, other types and sizes of cable entries can be fitted (on request).