

AXC F 2000 EA - Controller



1551772

<https://www.phoenixcontact.com/us/products/1551772>

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Controller (SPS), PLCnext Control; Programming: High-level language and IEC 61131-3; Operating system: Yocto/Linux® (real-time); Programming tool: PLCnext Engineer, Eclipse®, Visual Studio®, MATLAB®/ Simulink®; Product certified in accordance with IEC 62351-3 and IEC 62443 (SL2) (Certification conditions see user documentation); Processor: Arm® Cortex®-A53, 3x 1.2 GHz.

Your advantages

- Real-time-capable Linux operating system for deterministic and reliable execution of time-critical processes
- Developed for the field of energy applications
- Numerous protocols supported such as: http, https, FTP, SNMP, IPsec, syslog
- Contains licenses for IEC 60870-5-101/-104 and Modbus/RTU
- Support for numerous fieldbus protocols (PROFINET, Modbus TCP/RTU, Ethernet/IP, etc.) for easy integration into existing automation technology systems and installations
- Maximum design freedom thanks to the combination of classic PLC programming with modern high-level languages such as C++, C#, or Python
- Meets the highest security requirements of industrial automation – for the protection of your applications and data
- Specially developed Axioline Smart Elements for maximum flexibility and scalability
- 3 independent Ethernet interfaces
- Meets increased requirements in accordance with IEC 61850-3 Class H
- Extended temperature range of -40 °C ... +70 °C
- Integrated cybersecurity meets security standards in accordance with IEC 62443 and IEC 62351-3

Commercial data

Item number	1551772
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR09
Product key	DRMBAA
GTIN	4067923029323
Weight per piece (including packing)	422.7 g
Weight per piece (excluding packing)	356.8 g
Customs tariff number	85371091
Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use
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Product properties

Product family	PLCnext Control
Type	modular
Special properties	Product certified in accordance with IEC 62351-3 and IEC 62443 (SL2) Certification conditions see user documentation

Insulation characteristics

Protection class	II (IEC 61140, EN 61140, VDE 0140-1)
Overvoltage category	II (IEC 61010-2-201/EN IEC 61010-2-201)
Pollution degree	2

Display

Diagnostics display	no
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System properties

Trusted Platform Module	TPM 2.0
Flash memory	4 GByte (internal flash memory) SD card from Phoenix Contact (for external flash memory, see accessories)
Retentive data storage	1 Mbyte (NVRAM)

IEC 61131 runtime system

Program memory	12 Mbyte
Data storage system	32 Mbyte (internal flash memory)

Axioline

Amount of process data	max. 1482 Byte (per station (total input and output data)) max. 1024 Byte (Axioline F local bus (input)) max. 1024 Byte (Axioline F local bus (output))
Number of supported devices	max. 63 (per station)
Number of local bus devices that can be connected	max. 63 (observe current consumption)

Function

Diagnostics display	no
Redundancy function	yes
Industrial cybersecurity	yes

Functionality

Programming languages supported	Symbolic flowchart (SFC) Ladder diagram (LD)
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	Function block diagram (FBD)
	Structured text (ST)
	C++
	C#
	Java
	Python®
	Simulink®

System requirements

Engineering tool	PLCnext Engineer
	Eclipse®
	Visual Studio®
	MATLAB®/ Simulink®
Application interface	OPC UA®

Electrical properties

Real-time clock

Realtime clock	yes
Description realtime clock	typ. 10 ppm, max. 20 ppm at 25°C

Potentials

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple (± 5 %))
Power consumption	max. 16.2 W
Protective circuit	Surge protection; electronic
	Reverse polarity protection; electronic

Potentials: Axioline F local bus supply (U_{Bus})

Supply voltage	5 V DC (via bus base module)
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Output data

Relay

Number of outputs	1
Connection method	ST
Contact switching type	Single contact, 1 changeover contact
Contact connection type	Socket/pin

Interfaces

Supported protocols	HTTP
	HTTPS
	SFTP
	MQTT (via corresponding app)
	OPC UA® Server
	OPC UA® Client (via corresponding app)

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	DHCP (via corresponding app)
	IEC 60870-5-101 (Via extension module)
	IEC 60870-5-104
	IEC 61850 (via corresponding library)
	Modbus/RTU
	Modbus/TCP (via corresponding library)
	IPsec
	syslog
	DHCP
Web server	yes

Axioline F local bus

Number of interfaces	1
Connection method	Bus base module
Transmission speed	100 Mbps

Ethernet

Bus system	RJ45
Number of interfaces	3
Connection method	RJ45 jack
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	100/1000/10000 Mbps (full duplex)
Transmission physics	Ethernet in RJ45 twisted pair
Transmission length	max. 100 m

Dimensions

Width	100 mm
Height	126.93 mm
Depth	75 mm
Note on dimensions	The depth applies when a TH 35-7.5 DIN rail is used (in accordance with EN 60715).

Material specifications

Color (Housing)	gray (RAL 7042)
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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (Manufacturers declaration, not evaluated by UL)
Ambient temperature (operation)	-40 °C ... 70 °C up to 2000 m above mean sea level (observe derating)
	-40 °C ... 70 °C up to 3000 m above mean sea level (≥ 55°C (at maximum 1 A at UBus), observe derating)
	55 °C ... 70 °C (Observe the requirements in the user manual for operation in the extended temperature range in accordance with IEC 61850-3.)

	-40 °C ... 70 °C (Observe the requirements in the user manual for operation in the extended temperature range in accordance with IEC 61850-3.)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (according to DIN EN 61131-2)
Permissible humidity (storage/transport)	5 % ... 95 % (according to DIN EN 61131-2)
Shock (operation)	30g (in accordance with EN 60068-2-27/IEC 60068-2-27)
Vibration (operation)	5g (in accordance with EN 60068-2-6/IEC 60068-2-6)
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	58 kPa ... 106 kPa (up to 4500 m above mean sea level)

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conformance with EMC directives	Immunity test in accordance with EN IEC 61000-6-5 Electrostatic discharge (ESD)IEC 61000-4-2 Criterion A, 6 kV contact discharge, 8 kV air discharge
	Immunity test in accordance with EN IEC 61000-6-5 Electromagnetic fieldsIEC 61000-4-3 Criterion A, Field intensity: 10 V/m
	Immunity test in accordance with EN IEC 61000-6-5 Fast transients (burst)IEC 61000-4-4 Criterion A, 4 kV
	Immunity test in accordance with EN IEC 61000-6-5 Transient overvoltage (surge)IEC 61000-4-5 Criterion A, 4 kV asymmetrical, 2 kV symmetrical
	Immunity test in accordance with EN IEC 61000-6-5 Conducted interferenceIEC 61000-4-6 Criterion A, Test voltage 10 V
	Noise emission test in accordance with EN 61000-6-4/IEC 61000-6-4 pass

Mounting

Mounting type	DIN rail mounting
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Classifications

ECLASS

ECLASS-13.0	27242207
ECLASS-15.0	27242207

ETIM

ETIM 9.0	EC000236
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)

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Accessories

PLCNEXT ENGINEER - Programming software

1046008

<https://www.phoenixcontact.com/us/products/1046008>



Engineering software platform for Phoenix Contact automation controllers. PLCnext Engineer is IEC 61131-3-compliant and is available free of charge under Downloads. Its functionality can be extended using paid add-ins. To do this, open the license configurator via the "Configure" button.

FL MICRO SD FLASH - Program/configuration memory

1129482

<https://www.phoenixcontact.com/us/products/1129482>



Configuration memory in micro SD format

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AXL BS 31 SPARE PART - Replacement part

1672303

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Replacement bus base for AXC F 3152.



AXL F BP SE4 EA - Module carrier

1398501

<https://www.phoenixcontact.com/us/products/1398501>

Axioline F, Backplane, 4 slots for Axioline Smart Elements, transmission speed in the local bus: 100 Mbps, degree of protection: IP20



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AXL SE RS485 EA - Communication module

1398499

<https://www.phoenixcontact.com/us/products/1398499>



Axioline Smart Elements, Communication module, interface RS-485: 1, Process data width: 20 bytes, Transparent protocol, Modbus/RTU (client support), Modbus/RTU (server support), degree of protection: IP20

AXL SE RS232 EA - Communication module

1281866

<https://www.phoenixcontact.com/us/products/1281866>



Axioline Smart Elements, Communication module, interface RS-232: 1, in accordance with IEC 61850-3, Transparent protocol, degree of protection: IP20

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AXL SE DI4/2 110DC EA - Digital module

1285228

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Axioline Smart Elements, Digital input module, Digital inputs: 4, 110 V DC, connection technology: 2-conductor, in accordance with IEC 61850-3, degree of protection: IP20

AXL SE DI4/2 48/60DC EA - Digital module

1348696

<https://www.phoenixcontact.com/us/products/1348696>



Axioline Smart Elements, Digital input module, Digital inputs: 4, 48 V DC ... 60 V DC, connection technology: 2-conductor, in accordance with IEC 61850-3, degree of protection: IP20

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AXL SE DOR2 W 230 EA - Relay module

1398497

<https://www.phoenixcontact.com/us/products/1398497>



Axioline Smart Elements, Relay module, Relay outputs: 2 (floating), Changeover contact, 220 V DC, 230 V AC, in accordance with IEC 61850-3, degree of protection: IP20

AXL SE RTD2 PT100 EA - Temperature module

1398500

<https://www.phoenixcontact.com/us/products/1398500>



Axioline Smart Elements, Temperature recording module, Detection of Pt 100 temperature sensors, Analog RTD inputs: 2 (Pt 100), connection technology: 4-conductor, degree of protection: IP20

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AXL SE DI8/2 EA - Digital module

1398502

<https://www.phoenixcontact.com/us/products/1398502>



Axioline Smart Elements, Digital input module, Digital inputs: 8, 24 V DC, 19 V ... 29 V, connection technology: 2-conductor, in accordance with IEC 61850-3, degree of protection: IP20

AXC F XT ETH 1TX - PLC extension module

2403115

<https://www.phoenixcontact.com/us/products/2403115>



Additional alignable Ethernet interface connected to a modularly expandable PLCnext Control (not for AXC F 1152)

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AXC F XT KIT - PLC extension module

1383116

<https://www.phoenixcontact.com/us/products/1383116>

Alignable empty enclosure with adapter circuit board for extension with own miniPCle modules connected to a modularly expandable PLCnext Control (not for AXC F 1152)



AXL BS 31 SPARE PART - Replacement part

1672303

<https://www.phoenixcontact.com/us/products/1672303>

Replacement bus base for AXC F 3152.



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