SOL-SA-PCU-41XX - Controller

1114234

https://www.phoenixcontact.com/in/products/1114234

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PLCnext Control based on AXC F 2152. Prepared for a customer-specific application with a power generation plant controller. Basis for the feed-in management of power generation systems that feed into medium- and high-voltage grids. Certified in accordance with VDE-AR-N 4110/4120.

Product description

The PLCnext Control must be extended via a basic application subject to license to create a power generation plant controller in accordance with VDE-AR-N 4110:2018 (and 4120:2018) in combination with FGW TR8 Rev.09 for type 1 and type 2 systems. The licenses for the basic application are available in the PLCnext Store.
The PLCnext components included in the basic application satisfy the following requirements:

Active power control
• Setpoint definition by the grid operator and third parties
• P(f) characteristic curve (type 2 systems only)

Reactive power control
• cos(φ)
• Reactive power control with voltage limitation function
• Q(U) characteristic curve
• Q(P) characteristic curve

Other
• Reactive power prioritizing operating mode
• Controller bypass (bypass mode)
• Monitoring voltage conditions at the grid connection point for connecting the power generation unit after protection is triggered at the power generation unit (VDE-AR-N 4120:2018)
• Multiple instantiation of the PLCnext components is possible for independent control of multiple power generation unit types, e.g., system part 1: PV, system part 2: CHP plant, etc.

IMPORTANT INFORMATION
The interfaces (power providers, direct sellers, energy measuring devices, power generation units, portal connection, etc.) are to be connected by the user on the basis of the specific project.
The power generation plant controller functionality is subject to a license. The license required depends on the maximum possible system power. The following licenses are available:

• Power Control Unit – 250 kW (for an active power sum of up to 250 kW)
• Power Control Unit – 1 MW (for an active power sum of up to 1 MW)
• Power Control Unit – 5 MW (for an active power sum of up to 5 MW)
• Power Control Unit – 10 MW (for an active power sum of up to 10 MW)
• Power Control Unit – 50 MW (for an active power sum of up to 50 MW)
• Power Control Unit – UNLIMITED (no limit to the active power sum)

You can purchase the licenses in the PLCnext Store (for links, see the "Downloads" tab).

Your advantages

- Increased resistance to EMI
- Extended temperature range of -25 °C ... 60 °C
- Supports high-level languages
- PROFINET support
- 2 Ethernet interfaces (integrated switch)
- Up to 63 Axioline I/O modules can be aligned directly
- Linux operating system
- Compliance with the grid and system rules of German transmission system operators
- Complete with connector, bus base module, and 2 GB program/configuration memory
- Customer-specific expansion possible with open interfaces

Commercial data

Item number	1114234
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	*****
Product key	DTHAAA
GTIN	4063151036973
Weight per piece (including packing)	310.1 g
Weight per piece (excluding packing)	304 g
Customs tariff number	85371091
Country of origin	DE

Technical data

Notes

Notes on operation	To operate the product, you will need a product-specific license based on the active power sum of the generating plant. You can purchase the license in the PLCnext Store (for the link, see the "Downloads" tab).

Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area

Product properties

Product type	Controller
Product family	Axioline F
Type	Axioline

Insulation characteristics

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)

System properties

Retentive data storage	48 kByte (NVRAM)

IoT capability: PROFICLOUD

IoT platform	PROFICLOUD
Supports cloud computing	yes

IEC 61131 runtime system

Program memory	8 Mbyte
Data storage system	16 Mbyte

PROFINET

Device function	PROFINET controller, PROFINET device
Specification	Version 2.3
Update rate	min. 1 ms (4 devices)
	min. 16 ms (64 devices)
Conformance Class	A
Number of supported devices	max. 64 (at PROFINET controller)
Supported functions	MRP FSU
	MRP
Device ID	0142_{hex}
Vendor ID	$00B0_{hex}$

Functionality

Programming languages supported	Programming in acc. with IEC 61131-3
	C++
	C#

	Java
	Manufacturer-specific
System requirements	
Engineering tool	PLCnext Engineer
	Eclipse®
Application interface	OPC UA®

Electrical properties

Real-time clock	
Realtime clock	yes
Description realtime clock	1.73 s/day = 20 ppm at 25 °C
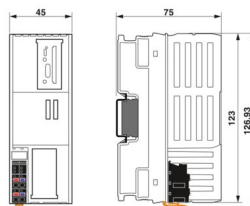
Interfaces

Web server	yes

Axioline F local bus	
Number of interfaces	1
Connection method	Bus base module
Number of interfaces	2
Connection method	RJ45 jack
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	10/100 Mbps (full duplex)
Transmission physics	Ethernet in RJ45 twisted pair
Transmission length	max. 100 m
No. of channels	2

Dimensions

Dimensional drawing	
Width	45 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	gray

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C up to 2000 m above mean sea level (observe derating)
	-25 °C ... 55 °C up to 3000 m above mean sea level (observe derating)
	≤ 55 °C (with max. 1 A on U_{Bus})
	> 55 °C ... 60 °C (only in conjunction with an Axioline F power module AXL F PWR 1H (Item no. 2688297))
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)	10g (Bump endurance test according to DIN EN 60068-2-27)
Vibration (operation)	5g
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 61000-6-2/IEC 61000-6-2 Electrostatic discharge (ESD)EN 61000-4-2/IEC 61000-4-2 Criterion B, ±6 kV contact discharge, ±8 kV air discharge
	Immunity test in accordance with EN 61000-6-2/IEC 61000-6-2 Electromagnetic fieldsEN 61000-4-3/IEC 61000-4-3 Criterion A, Field intensity: 10 V/m
	Immunity test in accordance with EN 61000-6-2/IEC 61000-6-2 Fast transients (burst)EN 61000-4-4/IEC 61000-4-4 Criterion B, ±2 kV
	Immunity test in accordance with EN 61000-6-2/IEC 61000-6-2 Transient overvoltage (surge)EN 61000-4-5/IEC 61000-4-5 Criterion B, DC supply lines: ±0.5 kV/±0.5 kV (symmetrical/asymmetrical), fieldbus cable shield: ±1 kV
	Immunity test in accordance with EN 61000-6-2/IEC 61000-6-2 Conducted interferenceEN 61000-4-6/IEC 61000-4-6 Criterion A, Test voltage 10 V
	Noise emission test in accordance with EN 61000-6-4/IEC 61000-6-4 Class A

Mounting

Mounting type	DIN rail mounting

Drawings

Dimensional drawing

45

75

123

126,93
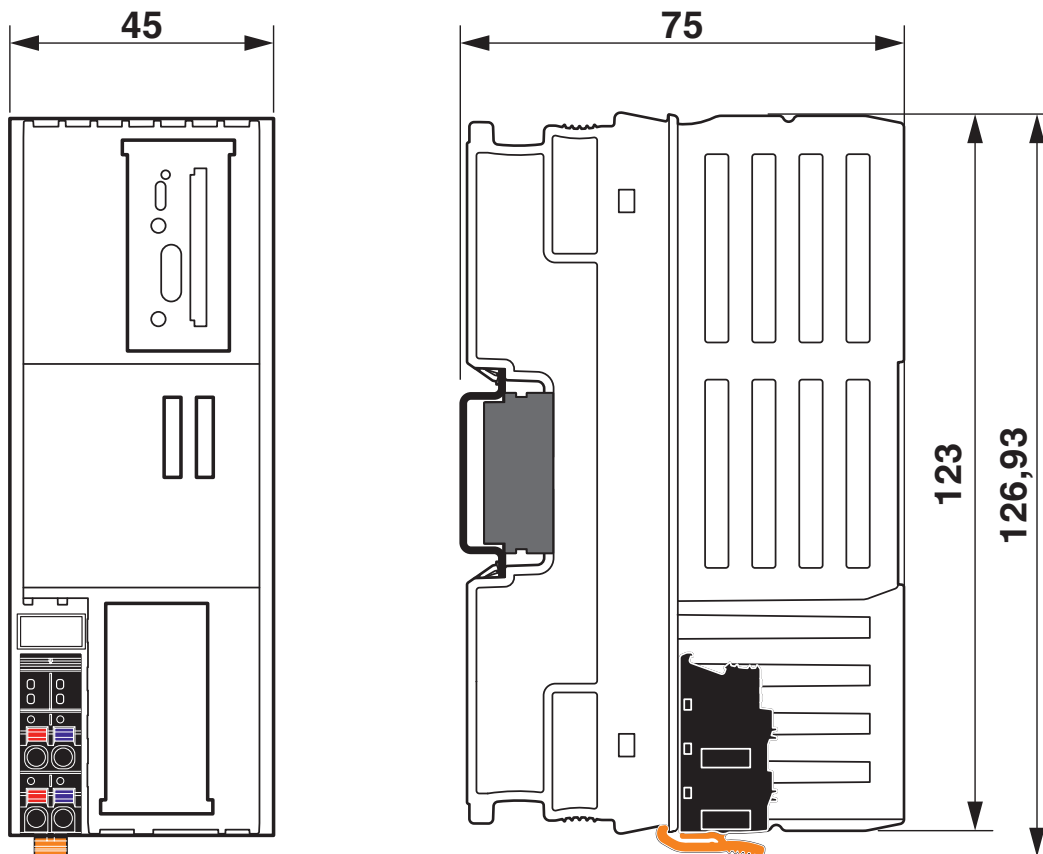
Classifications

ECLASS

ECLASS-11.0	27242207
ECLASS-12.0	27242207
ECLASS-13.0	27242207

ETIM

ETIM 9.0	EC000236

UNSPSC

UNSPSC 21.0	32151700

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(a), 7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	5f9c33b9-fa2a-4949-8857-1e55474d884f

SOL-SA-PCU-41XX - Controller

Accessories

AXL F AI4 I 1H - Analog module

2688491

https://www.phoenixcontact.com/in/products/2688491

Axioline F, Analog input module, Analog inputs: 4, 0 mA ... 20 mA, 4 mA ... 20 mA, -20 mA ... 20 mA, connection technology: 2-, 3-, 4-conductor, transmission speed in the local bus: 100 Mbps, integrated sensor supply, degree of protection: IP20, including bus base module and Axioline F connectors

AXL F AI4 U 1H - Analog module

2688501

https://www.phoenixcontact.com/in/products/2688501

Axioline F, Analog input module, Analog inputs: 4, 0 V ... 5 V, -5 V ... 5 V, 0 V ... 10 V, -10 V ... 10 V, connection technology: 2-, 3-, 4-conductor, transmission speed in the local bus: 100 Mbps, integrated sensor supply, degree of protection: IP20, including bus base module and Axioline F connectors

SOL-SA-PCU-41XX - Controller

1114234

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AXL F DI16/1 1H - Digital module

2688310

https://www.phoenixcontact.com/in/products/2688310

Axioline F, Digital input module, Digital inputs: 16, 24 V DC, connection technology: 1-conductor, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connectors

AXL F DO16/1 1H - Digital module

2688349

https://www.phoenixcontact.com/in/products/2688349

Axioline F, Digital output module, Digital outputs: 16, 24 V DC, 500 mA, connection technology: 1-conductor, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connectors

SOL-SA-PCU-41XX - Controller

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AXL F DI16/1 DO8/2-2A 2H - Digital module

2702291

https://www.phoenixcontact.com/in/products/2702291

Axioline F, Digital I/O module, Digital inputs: 16, 24 V DC, connection technology: 1-conductor, Digital outputs: 8, 24 V DC, 2 A, connection technology: 2-conductor, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connectors

AXC F XT ETH 1TX - PLC extension module

2403115

https://www.phoenixcontact.com/in/products/2403115

Left-alignable Ethernet interface, for connection to a compatible modular controller from the PLCnext Control range.
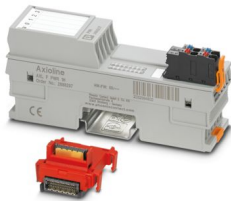
SOL-SA-PCU-41XX - Controller

1114234

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AXL F PWR 1H - Feed-in module

2688297

https://www.phoenixcontact.com/in/products/2688297

Axioline F, Power module for the logic supply U_{Bus}, max. 4 A, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connector

PLCNEXT ENGINEER - Programming software

1046008

https://www.phoenixcontact.com/in/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.

SOL-SA-PCU-41XX - Controller

SD FLASH 8GB PLCNEXT MEMORY - Program/configuration memory

1061701

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Program and configuration memory for storing the application programs and other files in the file system of the PLC, plug-in, 8 GB.

SD FLASH 2GB PLCNEXT MEMORY - Program/configuration memory

1043501

https://www.phoenixcontact.com/in/products/1043501

Program and configuration memory for storing the application programs and other files in the file system of the PLC, plug-in, 2 GB.

SOL-SA-PCU-41XX - Controller

1114234

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SD FLASH 32GB PLCNEXT MEMORY LIC - Program/configuration memory

1151111

https://www.phoenixcontact.com/in/products/1151111

Program and configuration memory for storing the application programs, licenses, and other files in the file system of the PLC, plug-in, 32 GB.

SD FLASH 8GB PLCNEXT MEMORY LIC - Program/configuration memory

1151112

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Program and configuration memory for storing the application programs, licenses, and other files in the file system of the PLC, plug-in, 8 GB.

SOL-SA-PCU-41XX - Controller

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AXL F BS BK - Bus connector

2701422

https://www.phoenixcontact.com/in/products/2701422

Axioline F bus base module for housing type BK

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