

# Busbar Protection

## SIPROTEC 7SS85

### Busbar Protection – 7SS85

Housing: expandable, 1/3 x 19" to 2/1 x 19"

#### Application range (significant feature 9...E <sup>1) 4)</sup>

- 9: 1 bus section, 3 measuring points and 3 bays incl.
- A: 2 bus sections, 4 measuring points and 4 bays incl.
- B: 2 bus sections, disconnecter image, 4 measuring points and 4 bays incl.
- C: 4 bus sections, 6 measuring points and 6 bays incl.
- D: 4 bus sections, disconnecter image, 6 measuring points and 6 bays incl
- E: CBFP only, 4 bus sections, disconnecter image, 6 measuring points and 6 bays incl.

#### Standard variant <sup>1)</sup>

- V1
- V2
- V2
- V3
- V3
- V3

#### Base function with hardware standard variant <sup>2)</sup>

- V1: 1/2, 15 BI, 13 BO (2S, 1 Life contact, 10F), 12CT
- V2: 1/2, 11 BI, 11 BO (2S, 1 Life contact, 8F), 16CT
- V3: 2/3, 15 BI, 15 BO (2S, 1 Life contact, 12F), 24CT

#### Function points <sup>3)</sup>

- Basic (0 function points)
- Additional bay (50 function points/bay)
- Circuit-Breaker Failure Protection, 3pole, per instance (15 function points)
- Circuit-Breaker Failure Protection, 1/3pole, per instance (25 function points)
- End-fault Protection, per instance (5 function points)
- Voltage protection, Frequency protection, per instance (5 function points) <sup>5)</sup>
- Overcurrent protection phase per bay, per instance (30 function points)

#### Cross stabilization

#### Warranty extension

- Price per extra year of warranty

#### Communication

- Integrated Ethernet interface RJ45 for DIGSI
- Integrated Ethernet interface RJ45 for DIGSI and IEC61850
- SIPROTEC 5 Plug-In Modules

#### Display, Housing, Key switch, LEDs etc.

- General price relevant options

1) Price valid for indicated standard variant.

2) Abbreviations:

Housing width in 19" fragments, with small display, with 16 LEDs

BI: Binary inputs

BO: Binary outputs

S: Standard relays, F: Fast relay

HS: High-speed relays, P: Power relays.

3) Available function scope acc. to catalog or function points calculator in the order configurator.

4) Maximum 20 (15 for CP200) current measuring points and 26 (22 for CP200) bays possible.

5) Maximum 4 (2 for CP200) voltage measuring points possible.

Note: With increasing number of current- and voltage measuring points the maximum number of feasible binary in- and outputs decreases.

In a configuration with 20 current measuring points only 43 binary inputs and 43 binary outputs are possible.

# General Ordering Options for Complete Devices

## SIPROTEC 5 General

### General ordering options for complete devices - General

#### Display type

Without display and without keypad  
Small display  
Large display

#### Key switch

Without  
With

#### Number of LEDs

16  
32  
48  
64  
80

#### Housing type

Flush mounting  
Surface mounting  
Surface-mounting with detached operation panel and 2,5 m cable  
Surface-mounting with detached operation panel and 5,0 m cable

#### Expansion modules for further expansion of hardware standard variants <sup>1)</sup>

**IO201:** 4I, 8BI, 6 BO (6F)  
**IO202:** 4I, 4U, 8BI, 6 BO (6F)  
**IO203:** 8I, 4BI, 4 BO (4F)  
**IO204:** 10BI, 6 BO (4S, 2P)  
**IO205:** 12BI, 16 BO (16S)  
**IO206:** 6BI, 7 BO (7S)  
**IO207:** 16BI, 8BO (8S)  
**IO208:** 4I, 4U, 4BI, 11BO (3S, 8F)  
**IO209:** 8BI, 4BO (4HS)  
**IO211:** 8 BI, 8VT  
**IO214:** 4I, 4U, 2BI, 5BO (5F)  
**IO215:** 4I, 4U, 8BI, 6BO (6F) Special module for RC-divider with 10 V voltage inputs  
**IO230:** 48 BI  
**IO231:** 24 BI, 24 BA  
**CB202:** Communication board with ports M, N, P for plug-in modules  
**PB201:** Process bus (in preparation)  
**PS203:** Power supply for second row, contains connecting cable to 1st row

#### 1) Abbreviations:

Housing width in 19" fragments, with large display, with 16 LEDs

BI: Binary inputs

BO: Binary outputs

S: Standard relays, F: Fast relays.

## General ordering options for complete devices – General

### Extra function points

Basis  
Basis + 10 function points  
Basis + 20 function points  
Basis + 30 function points  
Basis + 40 function points  
Basis + 50 function points  
Basis + 75 function points  
Basis + 100 function points  
Basis + 125 function points  
Basis + 150 function points  
Basis + 175 function points  
Basis + 200 function points  
Basis + 225 function points  
Basis + 250 function points  
Basis + 275 function points  
Basis + 300 function points  
Basis + 325 function points  
Basis + 350 function points  
Basis + 375 function points  
Basis + 400 function points  
Basis + 425 function points  
Basis + 450 function points  
Basis + 475 function points  
Basis + 500 function points  
Basis + 600 function points  
Basis + 700 function points  
Basis + 800 function points  
Basis + 900 function points  
Basis + 1 000 function points  
Basis + 1 100 function points  
Basis + 1 200 function points  
Basis + 1 300 function points  
Basis + 1 400 function points

# SIPROTEC 5 - Arc Protection

Product description	Order No.
<b>Arc Protection</b>	(Short Product Code)
Arc Protection Plugin Module (ARC-CD-3FO)	<b>P1Z1966</b>
Point Sensor 3 m	<b>P1X19</b>
Point Sensor 4 m	<b>P1X28</b>
Point Sensor 5 m	<b>P1X37</b>
Point Sensor 10 m	<b>P1X46</b>
Point Sensor 15 m	<b>P1X55</b>
Point Sensor 20 m	<b>P1X64</b>
Point Sensor 35 m	<b>P1X82</b>

# SIPROTEC 5 - Interfaces

Product description	Order No. <sup>1)</sup>
<b><u>Plug-in modules for System Interface</u></b>	(Short Product Code)
<b>USART-AB-1EL: 1 x electric</b> 1 x electrical RS485, applicable for serial protocols, e.g. IEC60870-5-103, DNP3, RTD-unit and 20 mA unit	<b>P1Z79</b>
<b>USART-AC-2EL: 2 x electric</b> 2 x electrical RS485, applicable for serial protocols, e.g. IEC60870-5-103, DNP3, RTD-unit and 20 mA unit	<b>P1Z437</b>
<b>USART-AD-1FO: 1 x opt. 1.5 km</b> 1 x optic serial, 820 nm, ST-connector, 1.5 km over 62,5/125 µm multimode - fiber applicable for IEC 60870-5-103 (extended), DNP 3 serial and Protection interface (Sync. HDLC, IEEE C37.94)	<b>P1Z62</b>
<b>USART-AE-2FO: 2 x opt. 1.5 km</b> 2 x optic serial, 820 nm, ST-connector, 1.5 km over 62,5/125 µm multimode - fiber applicable for IEC 60870-5-103 (extended), DNP 3 serial and Protection interface (Sync. HDLC, IEEE C37.94)	<b>P1Z48</b>
<b>ETH-BA-2EL: 2 x electrical Ethernet interfaces</b> RJ45 plug, 100 Mbit/s integrated switch (for RSTP, PRP, HSR), applicable for IEC 61850, DNP3 TCP, IEC 60870-5-104 and IEEE C37.118 (Syncho-phasor)	<b>P1Z55</b>
<b>ETH-BB-2FO: 2 x optical Ethernet interfaces</b> LC-Duplex connector, 100 Mbit/s, integrated switch (for RSTP, PRP, HSR), applicable for IEC 61850, DNP3 TCP, IEC 60870-5-104 and IEEE C37.118 (Syncho-phasor)	<b>P1Z390</b>
<b><u>Plug-in module for various applications</u></b>	
<b>ANAI-CA-4EL: 4x 20 mA</b> ANAI-CA-4EL: 4 Analog inputs 20 mA, screw terminals	<b>P1Z1137</b>

1) The below-mentioned Ordering No. is applicable for a warranty period of 5 years. For extended warranty, please select the appropriate Ordering No. (Short product code) by using the online configurator.

**Plug-in modules for Protection Interface**Ordering No. <sup>5)</sup>  
(Short Product Code)

<b>USART-AF-1LDFO: 1 x opt. 24 km (single-mode) / 4 km (multimode)</b> 1 x optic serial, 1300 nm, LC duplex connector, 24 km over 9/125 µm singlemode – fiber, 4 km over 62,5/125 µm multimode - fiber applicable for Protection interface	<b>P1Z758</b>
<b>USART-AW-2LDFO: 2x opt. 24 km (single-mode) / 4 km (multimode)</b> 2 x optic serial, 1300 nm, LC duplex connector, 24 km over 9/125 µm singlemode – fiber, 4 km over 62,5/125 µm multimode - fiber applicable for Protection interface	<b>P1Z772</b>
<b>USART-AG-1LDFO: 1 x opt. 60 km</b> 1 x optic serial, 1300 nm, LC duplex connector, 60 km over 9/125 µm singlemode – fiber applicable for Protection interface	<b>P1Z468</b>
<b>USART-AU-2LDFO: 2 x opt. 60 km</b> 2 x optic serial, 1300 nm, LC duplex connector, 60 km over 9/125 µm singlemode – fiber applicable for Protection interface	<b>P1Z239</b>
<b>USART-AK-1LDFO: 1x opt. 100 km</b> 1 x optic serial, 1550 nm, LC duplex connector, 100 km over 9/125 µm singlemode – fiber applicable for Protection interface	<b>P1Z888</b>
<b>USART-AV-2LDFO: 2 x opt. 100 km</b> 2 x optic serial, 1550 nm, LC duplex connector, 100 km over 9/125 µm singlemode – fiber applicable for Protection interface	<b>P1Z741</b>
<b>USART-AH-1LDFO: 1x opt.,bidir.</b> 1 x optic serial, bidirectional via 1 common fiber, 1300 nm/1550 nm (Tx/Rx), LC simplex connector, 40 km over 9/125 µm singlemode – fiber <sup>1)</sup> applicable for Protection interface	<b>P1Z765</b>
<b>USART-AJ-1LDFO: 1x opt.,bidir.</b> 1 x optic serial, bidirectional via 1 common fiber, 1550 nm/1300 nm (Tx/Rx), LC simplex connector 40 km over 9/125 µm singlemode – fiber <sup>2)</sup> applicable for Protection interface	<b>P1Z1007</b>
<b>USART-AX-2LDFO: 2x opt.,bidir.</b> 2 x optic serial, bidirectional via 1 common fiber, 1300 nm/1550 nm (Tx/Rx), 2 x LC simplex connector, 40 km over 9/125 µm singlemode – fiber <sup>3)</sup> applicable for Protection interface	<b>P1Z802</b>
<b>USART-AY-2LDFO: 2x opt.,bidir.</b> 2 x optic serial, bidirectional via 1 common fiber, 1550 nm/1300 nm (Tx/Rx), 2x LC simplex connector, 40 km over 9/125 µm singlemode – fiber <sup>4)</sup> applicable for Protection interface	<b>P1Z789</b>

**Warranty extension**

price per extra year of warranty (applicable for each plug-in module)

- 1) USART-AH-1LDFO only in conjunction with USART-AJ-1LDFO or USART-AY-2LDFO at the remote end.
- 2) USART-AJ-1LDFO only in conjunction with USART-AH-1LDFO or USART-AX-2LDFO at the remote end.
- 3) USART-AX-2LDFO only in conjunction with USART-AJ-1LDFO or USART-AY-2LDFO at the remote end.
- 4) USART-AY-2LDFO only in conjunction with USART-AH-1LDFO or USART-AX-2LDFO at the remote end.
- 5) The below-mentioned Ordering No. is applicable for a warranty period of 5 years. For extended warranty, please select the appropriate Ordering No. (Short product code) by using the online configurator.