Product description	Variants	Order No.

Distance protection

with additional functions

Order No. positions: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

`7 S A 5 2 2 □ - □ □ □ □ □ □ - □ □ □ □`

Measuring inputs (4xV, 4xI)

Option	Code
I_{ph} = 1 A[5], I_e = 1 A[5] (min. = 0,05 A)	1
I_{ph} = 1 A[5], I_e = sensitive (min. = 0,003 A)	2
I_{ph} = 5 A[5], I_e = 5 A[5] (min. = 0,25 A)	5
I_{ph} = 5 A[5], I_e = sensitive (min. = 0,003 A)	6

Auxiliary voltage (power supply, binary inputs)

Option	Code
DC 24 V to 48 V, binary input threshold DC 19 V[2]	2
DC 60 V to 125 V[1], binary input threshold DC 19 V[2]	4
DC 110 V to 250 V[1], AC 115 V, binary input threshold DC 88 V[2]	5
DC 220 V to 250 V[1], AC 115 V, binary input threshold DC176 V[2]	6

Binary / indication inputs	Signal / command outputs incl Life contact	Fast relays[3]	High Speed[4] trip outputs	Housing width referred to 19"	Flush-mounting housing / screw terminals	Flush-mounting housing / plug-in terminals	Surface-mounting housing / screw terminals	Code
8	4	12	-	1/2	■			A
8	4	12	-	1/2			■	E
8	4	12	-	1/2		■		J
16	12	12	-	1/1	■			C
16	12	12	-	1/1			■	G
16	12	12	-	1/1		■		L
16	4	15	5	1/1	■			N
16	4	15	5	1/1			■	Q
16	4	15	5	1/1		■		S
24	20	12	-	1/1	■			D
24	20	12	-	1/1			■	H
24	20	12	-	1/1		■		M
24	12	15	5	1/1	■			P
24	12	15	5	1/1			■	R
22	32	12	-	1/1	■			U
24	4	18	10	1/1	■			W
24	24	3	5	1/1		■		T

Region and operating language (language changeable)

Option	Code
Region GE, language German	A
Region World, language UK-English	B
Region US, language US-English	C
Region FR, language French	D
Region World, language Spanish	E
Region World, language Italian	F
Region World, language Russian	G
Region World, language Polish	H

Definition of region-specific presettings and function versions:

Region GE: preset f = 50 Hz and fault detector in km,no ANSI, no logarithmic inverse EF-characteristics

Region US: preset to f = 60 Hz and fault detector in miles, ANSI inverse characteristic only

Region World: preset f = 50 Hz and fault locator in km

Region FR: EF: no logarithmic inverse characteristic, with zero sequenze power protection; weak infeed logic acc. to French specification.

1) Transition between the three auxiliary voltage ranges can be selected by means of jumpers.
2) The binary input thresholds are selectable in three steps by means of jumpers.
3) Fast relays are identified in the terminal connection diagram. The time advantage compared with signal/command outputs is approx. 3 ms, mainly for protection commands.
4) High-speed trip outputs are identified in the terminal connection diagram. The time advantage compared with Fast relays is approx. 5 ms.
5) Rated current 1/5 A can be selected by means of jumpers.

Distance Protection
SIPROTEC 7SA522

Product description	Variants	Order No.

Order number positions: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 Short code

7 S A 5 2 2 ☐ - ☐ ☐ ☐ ☐ ☐ - ☐ ☐ ☐ ☐ ☐ ☐ ☐

Distance protection

(continued from previous page)

Port B

Description	Code
empty	0
System-port, IEC 60870-5-103 Protocol, RS232	1
System-port, IEC 60870-5-103 Protocol, RS485	2
System-port, IEC 60870-5-103 Protocol, optical 820 nm, ST-connector	3
Further protocols see supplement L	9 → L 0 ☐

(Short code column, position after L 0:)

Description	Short code
System-port, PROFIBUS DP Slave, RS485	A
System-port, PROFIBUS DP Slave, 820 nm optical, double ring, ST-connector[2]	B
System-port, DNP3.0, RS485	G
System-port, DNP3.0, 820 nm optical, ST-connector[2]	H
IEC 61850, 100 Mbit Ethernet, electrical, double, RJ45-connector	R
IEC 61850, 100 Mbit Ethernet, with integrated switch optical, double, LC-connector [5]	S

Port C and/or Port D

Description	Code
Port C and Port D empty	0
Port C: DIGSI / Modem, RS232; Port D: empty	1
Port C: DIGSI / Modem, RS485; Port D: empty	2
Port C: DIGSI / Modem, optical 820 nm, ST-connector ; Port D : empty	3
With Port D see supplement M	9 → M ☐ ☐

Port C

Description	Code
Port C empty	0
Port C: DIGSI / Modem, RS232	1
Port C: DIGSI / Modem, RS485	2
Port C: DIGSI / Modem, optical 820 nm, ST-connector	3

Port D

Protection interface:

Description	Code
FO5: Optical 820 nm, 2 ST-connectors, line length up to 1,5 km via multimode FO cable for communication converter or direct FO connection [3]	A
FO6: Optical 820 nm, 2 ST-connectors, line length up to 3,5 km via multimode FO cable for direct FO connection	B
FO17: Optical 1300 nm, LC-Duplex-plugs, line length up to 24 km via monomode FO cable for direct FO connection [4]	G
FO18: Optical 1300 nm, LC-Duplex-plugs, line length up to 60 km via monomode FO cable for direct FO connection [4][6]	H
FO19: Optical 1550 nm, LC-Duplex-plugs, line length up to 100 km via monomode FO cable for direct FO connection [4][7]	J
FO30: Optical 820 nm, 2 ST-connectors, line length up to 1,5 km via multimode FO cable for communication networks with IEEE C37.94 interface or direct FO connection [8]	S

---

[1] For SICAM energy automation systems

[2] Optical interface is not available with Surface-mounting housing. Please order the version with RS485 interface and a separate electric/optical converter.

[3] Suitable communication converters 7XV5662 (optical to G703.1/X21 or optical to pilot wire) see chapter „Accessories communication"

[4] For Surface-mounting housing applications an internal fiber-optic module 820mm will be delivered in combination with an external repeater.
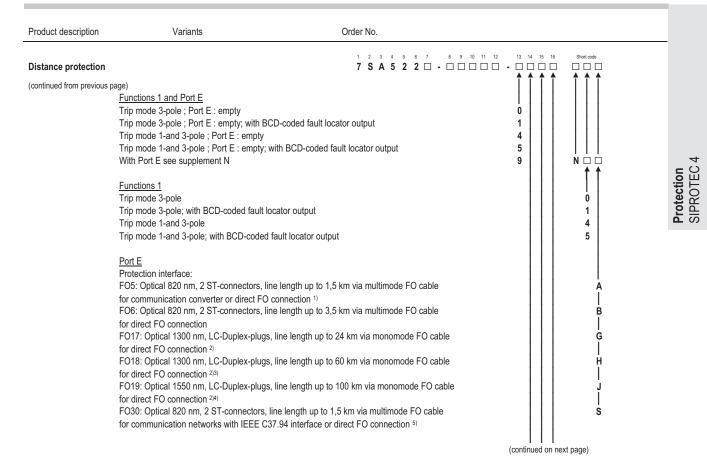
[5] For Surface-mounting housing applications please order the relay with electrical ethernet interface and use a separate fiber-optic switch.

[6] For distances less than 25km, two optical attenuators 7XV5107-0AA00 are required to avoid optical saturation of the receiver element.

[7] For distances less than 50km, two optical attenuators 7XV5107-0AA00 are required to avoid optical saturation of the receiver element.

[8] Only available in flush-mounting housing.

Product description	Variants	Order No.

Distance protection

```
 1  2  3  4  5  6  7    8  9  10 11 12    13 14 15 16    Short code
 7  S  A  5  2  2 ☐  -  ☐  ☐  ☐  ☐  ☐  -  ☐  ☐  ☐  ☐    ☐  ☐  ☐
```

(continued from previous page)

<u>Functions 1 and Port E</u>
Trip mode 3-pole ; Port E : empty   **0**
Trip mode 3-pole ; Port E : empty; with BCD-coded fault locator output   **1**
Trip mode 1-and 3-pole ; Port E : empty   **4**
Trip mode 1-and 3-pole ; Port E : empty; with BCD-coded fault locator output   **5**
With Port E see supplement N   **9**   **N ☐ ☐**

<u>Functions 1</u>
Trip mode 3-pole   **0**
Trip mode 3-pole; with BCD-coded fault locator output   **1**
Trip mode 1-and 3-pole   **4**
Trip mode 1-and 3-pole; with BCD-coded fault locator output   **5**

<u>Port E</u>
Protection interface:
FO5: Optical 820 nm, 2 ST-connectors, line length up to 1,5 km via multimode FO cable
for communication converter or direct FO connection [1]   **A**
FO6: Optical 820 nm, 2 ST-connectors, line length up to 3,5 km via multimode FO cable
for direct FO connection   **B**
FO17: Optical 1300 nm, LC-Duplex-plugs, line length up to 24 km via monomode FO cable
for direct FO connection [2]   **G**
FO18: Optical 1300 nm, LC-Duplex-plugs, line length up to 60 km via monomode FO cable
for direct FO connection [2][3]   **H**
FO19: Optical 1550 nm, LC-Duplex-plugs, line length up to 100 km via monomode FO cable
for direct FO connection [2][4]   **J**
FO30: Optical 820 nm, 2 ST-connectors, line length up to 1,5 km via multimode FO cable
for communication networks with IEEE C37.94 interface or direct FO connection [5]   **S**

1) Suitable communication converters 7XV5662 (optical to G703.1/X21 or optical to pilot wire) see chapter „Accessories communication"
2) For Surface-mounting housing applications an internal fiber-optic module 820mm will be delivered in combination with an external repeater.
3) For distances less than 25km, two optical attenuators 7XV5107-0AA00 are required to avoid optical saturation of the receiver element.
4) For distances less than 50km, two optical attenuators 7XV5107-0AA00 are required to avoid optical saturation of the receiver element.
5) Only available in flush-mounting housing.

Distance Protection
SIPROTEC 7SA522

Protection SIPROTEC 4

Product description	Variants	Order No.

Distance protection

with additional functions

(continued from previous page)

```
  1  2  3  4  5  6  7     8  9  10 11 12    13 14 15 16
  7  S  A  5  2  2 □ - □ □ □ □ □ - □ □ □ □
                                    ▲  ▲  ▲
```

Functions 2

Distance protection characteristic (ANSI 21, 21N)	Power Swing detection (ANSI 68, 68T)	Parallel line compensation	
Quadrilateral			C
Quadrilateral and/or MHO			E
Quadrilateral	■		F
Quadrilateral and/or MHO	■		H
Quadrilateral		■[1]	K
Quadrilateral and/or MHO		■[1]	M
Quadrilateral	■	■[1]	N
Quadrilateral and/or MHO	■	■[1]	Q

Functions 3

Auto-reclosure (ANSI 79)	Synchrocheck (ANSI 25)	Breaker failure protection (ANSI 50BF)	Over-/Undervoltage Over-/Underfrequency protection (ANSI 27,59)	
				A
			■	B
		■		C
		■	■	D
	■			E
	■		■	F
	■	■		G
	■	■	■	H
■				J
■			■	K
■		■		L
■		■	■	M
■	■			N
■	■		■	P
■	■	■		Q
■	■	■	■	R

Functions 4

Direction Earth-fault protection, earthed networks (ANSI 50N, 51N, 67N)	Measured values, extended Min, max, mean	
		0
	■	1
■		4
■	■	5

[1] Only with Order No. Position 7 = **1** or **5**