

Voltage and Frequency Protection

SIPROTEC 7RW80

Protection
SIPROTEC Compact

Product description	Variants	Order No.
Voltage and frequency relay		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 Short code
		7 R W 8 0 □ 0 - □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
	<u>Housing, binary inputs and outputs</u>	
	Housing 1/6 19", 3xV, 3 BI, 5 BO ¹⁾ , 1 Life contact	1
	Housing 1/6 19", 3xV, 7 BI, 8 BO ¹⁾ , 1 Life contact	2
	<u>Rated auxiliary voltage</u>	
	DC 24 V to 48 V	1
	DC 60 V to 250 V; AC 115 V; AC 230 V	5
	<u>Unit version</u>	
	Surface-mounting housing, screw-type terminal	B
	Flush-mounting housing, screw-type terminal	E
	<u>Region-specific default- and language settings</u>	
	Region DE, IEC, language German ²⁾ , standard front	A
	Region World, IEC/ANSI, language English ²⁾ , standard front	B
	Region US, ANSI, language US-English ²⁾ , US front	C
	Region FR, IEC/ANSI, language French ²⁾ , standard front	D
	Region World, IEC/ANSI, language Spanish ²⁾ , standard front	E
	Region World, IEC/ANSI, language Italian ²⁾ , standard front	F
	Region RUS, IEC/ANSI, language Russian ²⁾ , standard front	G
	Region CHN, IEC/ANSI, language Chinese ³⁾ , Chinese front	K
	<u>Port B (at bottom of device, rear)</u>	
	No port	0
	IEC 60870-5-103 or DIGSI 4/modem, electrical RS232	1
	IEC 60870-5-103 or DIGSI 4/modem, electrical RS485	2
	IEC 60870-5-103 or DIGSI 4/modem, optical 820 nm, ST-connector	3
	Further protocols see supplement L	9
	PROFIBUS DP slave, electrical RS485	
	PROFIBUS DP slave, optical, double ring, ST-connector	
	Modbus, electrical RS485	
	Modbus, optical 820 nm, ST-connector	
	DNP3, electrical RS485	
	DNP3, optical 820 nm, ST-connector	
	IEC 61850, 100 Mbit Ethernet, electrical, double, RJ45-connector	
	IEC 61850, 100 Mbit Ethernet, optical, double, LC-connector	
	<u>Port A (at bottom of device, in front)</u>	
	No port	0
	With Ethernet interface (DIGSI, not IEC 61850), RJ45-connector	6
	<u>Measuring / fault recording</u>	
	With fault recording, average values, min/max values	1

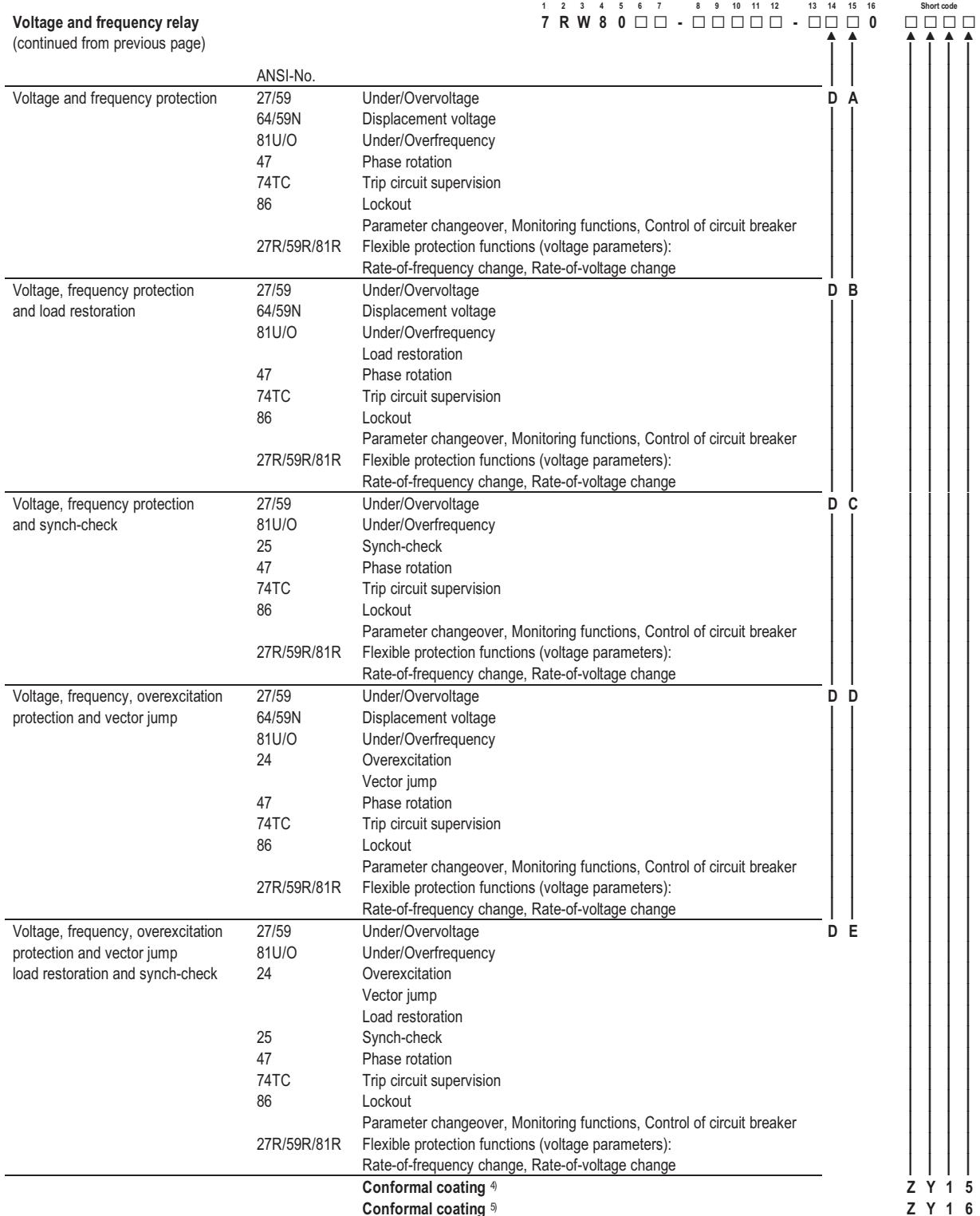
(continued on next page)

1) 2 changeover/Form C.

2) Language selectable.

3) Language not changeable.

Voltage and Frequency Protection SIPROTEC 7RW80

Product description	Variants	Order No.
Voltage and frequency relay (continued from previous page)		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 7 R W 8 0 <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  Short code <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	ANSI-No.	
Voltage and frequency protection	27/59 Under/Ovvoltage 64/59N Displacement voltage 81U/O Under/Overfrequency 47 Phase rotation 74TC Trip circuit supervision 86 Lockout 27R/59R/81R Parameter changeover, Monitoring functions, Control of circuit breaker Flexible protection functions (voltage parameters): Rate-of-frequency change, Rate-of-voltage change	D A
Voltage, frequency protection and load restoration	27/59 Under/Ovvoltage 64/59N Displacement voltage 81U/O Under/Overfrequency Load restoration 47 Phase rotation 74TC Trip circuit supervision 86 Lockout 27R/59R/81R Parameter changeover, Monitoring functions, Control of circuit breaker Flexible protection functions (voltage parameters): Rate-of-frequency change, Rate-of-voltage change	D B
Voltage, frequency protection and synch-check	27/59 Under/Ovvoltage 81U/O Under/Overfrequency 25 Synch-check 47 Phase rotation 74TC Trip circuit supervision 86 Lockout 27R/59R/81R Parameter changeover, Monitoring functions, Control of circuit breaker Flexible protection functions (voltage parameters): Rate-of-frequency change, Rate-of-voltage change	D C
Voltage, frequency, overexcitation protection and vector jump	27/59 Under/Ovvoltage 64/59N Displacement voltage 81U/O Under/Overfrequency 24 Overexcitation Vector jump 47 Phase rotation 74TC Trip circuit supervision 86 Lockout 27R/59R/81R Parameter changeover, Monitoring functions, Control of circuit breaker Flexible protection functions (voltage parameters): Rate-of-frequency change, Rate-of-voltage change	D D
Voltage, frequency, overexcitation protection and vector jump load restoration and synch-check	27/59 Under/Ovvoltage 81U/O Under/Overfrequency 24 Overexcitation Vector jump Load restoration 25 Synch-check 47 Phase rotation 74TC Trip circuit supervision 86 Lockout 27R/59R/81R Parameter changeover, Monitoring functions, Control of circuit breaker Flexible protection functions (voltage parameters): Rate-of-frequency change, Rate-of-voltage change	D E
Conformal coating ⁴⁾		Z Y 1 5
Conformal coating ⁵⁾		Z Y 1 6

4) Only with position 6 = 1

5) Only with position 6 = 2

Line Differential Protection

SIPROTEC 7SD80

Protection
SIPROTEC Compact

Product description	Variants	Order No.
Medium voltage differential protection device		1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 Short code
	Housing 1/6 19", binary inputs and outputs	7 S D 8 0 □ □ - □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
	1 Life contact	1
	4xI, 3 BI, 5 BO ¹⁾ , Prot. Data Interface FO for mono- (24km) and multimode (4km), LC-duplex connector	2
	4xI, 7 BI, 8 BO ¹⁾ , Prot. Data Interface FO for mono- (24km) and multimode (4km), LC-duplex connector	3
	4xI, 5 BI, 8 BO ¹⁾ , Prot. Data Interface, 2 wires copper, twisted	5
	4xI, 3xV, 3 BI, 5 BO ¹⁾ , Prot. Data Interface FO for mono- (24km) and multimode (4km), LC-duplex connector	6
	4xI, 3xV, 7 BI, 8 BO ¹⁾ , Prot. Data Interface FO for mono- (24km) and multimode (4km), LC-duplex connector	7
	4xI, 3xV, 5 BI, 8 BO ¹⁾ , Prot. Data Interface 2 wires copper twisted	
	Measuring inputs, default settings	1 2
	I _{ph} = 1 A/5 A, I _e = 1 A/5 A	1
	I _{ph} = 1 A/5 A, I _{ee} (sensitive) = 0,001 to 1,6 A/0,005 to 8 A	2
	Rated auxiliary voltage	1 5
	DC 24 V to 48 V	1
	DC 60 V to 250 V; AC115 V; AC 230 V	5
	Unit version	B E
	Surface-mounting housing, screw-type terminal	A
	Flush-mounting housing, screw-type terminal	B
		C
	Region-specific default- and language settings	
	Region DE, IEC, language German ²⁾ , standard face plate	
	Region World, IEC/ANSI, language English ²⁾ , standard face plate	
	Region US, ANSI, language US-English ²⁾ , US face plate	
	Port B (at bottom of device)	0 1 2 3 9 L 0 □
	No port	0
	IEC 60870-5-103 or DIGSI 4/modem or Time Sync. Port, electrical RS232	1
	IEC 60870-5-103 or DIGSI 4/modem or Time Sync. Port, electrical RS485	2
	IEC 60870-5-103 or DIGSI 4/modem Time Sync. Port, optical 820 nm, ST-connectors	3
	Further protocols see supplement L	9
	PROFIBUS DP slave, electrical RS485	
	PROFIBUS DP slave, optical, double ring, ST-connector	
	Modbus, electrical RS485	
	Modbus, optical 820 nm, ST-connector	
	DNP3, electrical RS485	
	DNP3, optical 820 nm, ST-connector	
	IEC 60870-5-103, redundant, electrical RS485, RJ45-connector	
	IEC 61850, 100 Mbit Ethernet, 2 electrical ports, RJ45-connector	
	IEC 61850, 100 Mbit Ethernet, 2 FO ports, LC-duplex connector	
	Port A (at bottom of device)	0 7
	No port ³⁾	0
	Redundant FO Protection interface to the 2 wire copper interface	
	Protection interface FO for mono- (24km) and multimode (4km).	
	LC-duplex connector. ⁴⁾	7

(continued on next page)

1) 2 changeover/Form C.

2) Language selectable.

3) The FO interface is equipped if MLFB position 6 = 1, 2, 5 or 6.

4) only if MLFB position 6=3 or 7.

Line Differential Protection SIPROTEC 7SD80

Product description	Variants	Order No.	
Medium voltage differential protection device		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Short code
(continued from previous page)	Measuring / fault recording With fault recorder With fault recorder, average values, min/max values	7 S D 8 0 <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	ANSI-No.		
Basic version (contained in all options)	87L/87N	Line differential protection (phase comparison and 3IO differential protection ¹⁾) Inrush-current detection	F A 12
	50 TD/51	Definite/inverse time-overcurrent protection phase $I >$, $I >>$, $I >>>$, I_p	
	50N TD/51N	Definite/inverse time-overcurrent protection ground $I_E >$, $I_E >>$, $I_E >>>$, I_{EP}	
	49	Overload protection	
	74 TC	Trip circuit supervision	
	50 BF	Circuit breaker failure protection	
	86	Lockout	
	85 DT	Circuit-breaker intertripping function (trip of the remote circuit breaker) External trip initiation Parameter changeover (parameter group change) Supervision functions Circuit-breaker test Control of circuit-breaker Flexible protection function current, voltage ²⁾ , $\cos \varphi$ ²⁾ , power ²⁾ , frequency ²⁾	
	27/59	Under-/Overvoltage protection ²⁾ $V <$, $V >$	
	81 U/O	Under-/Overfrequency protection ²⁾ $f <$, $f >$	
■	67	Directional definite/inverse time-overcurrent protection, phase ³⁾ , $\angle(V,I) >$, $I >>$, I_p	F B 12
	67N	Directional definite/inverse time-overcurrent protection ground ³⁾ , $\angle(V,I) I_E >$, $I_E >>$, I_{EP}	
■	87Ns L	Ground-fault differential protection for isolated/resonance-earthed networks ³⁾⁴⁾	F C 34
■	67	Directional definite/inverse time-overcurrent protection, phase ³⁾ $\angle(V,I) >$, $I >>$, I_p	F E 34
	67N	Directional definite/inverse time-overcurrent protection, ground ³⁾ , $\angle(V,I) I_E >$, $I_E >>$, I_{EP}	
	87Ns L	Ground-fault differential protection for isolated/resonance-earthed networks ³⁾⁴⁾	
AR		Without	0
		Transmission of 16 binary signals via the Protection interface	1
	79	With automatic reclosure function (AR)	2
	79	Transmission of 16 binary signals via the Protection interface and with automatic reclosure function (AR)	5
		Conformal coating ⁵⁾	Z Y 1 5
		Conformal coating ⁶⁾	Z Y 1 6

■ Basic version included.

- 1) MLFB position 7 = 1 required ($I_{ph} = 1 A/5 A$, $I_e = 1 A/5 A$).
- 2) Function available if MLFB position 6 = 5, 6 or 7 (voltage transformer inputs).
- 3) MLFB position 6 = 5, 6 or 7 required (voltage transformer inputs).
- 4) MLFB position 7 = 2 required ($I_{ph} = 1 A/5 A$, I_{ee} (sensitive) = 0.001 to 1.6 A/0.005 to 8 A).
- 5) Only with position 6 = 1 or 5
- 6) Only with position 6 = 2, 3, 6 or 7