P R I N T - C O N T E N T S

A11 7UM511 V3.1

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Configuration, Control, Marshalling, Settings

ElPolaniec bl1
System A
A11 7UM511 V3.1
7UM51155EB010CB0 V03.1x

Configuration, Control, Marshalling, Settings

Configuration

7100	**LOCAL USER INTERFACE**	
7101	Language	English
7102	Date format	DD.MM.YY (Europe)
7105	Top Line of Display under Normal Conditions	0641 Three phase Watt as percent of rated
7106	Bottom Line of Display under Normal Conditions	0642 Three phase Var as a percent of rated
7107	Top Line of Display after Fault	0543 Protection function(s) pick-up
7108	Bottom Line of Display after Fault	0544 Protective Trip
7151	Password for user level one authority	0
7152	Password for user level two authority	0
7153	Password for user level three authority	0
7154	Password for user level four authority	0
7200	**CONFIGURATION OF COMM PORTS**	
7208	Function type (for the VDEW-protocol)	70
7211	Front port	DIGSI V3
7214	Time gap between msg. packets for front port	0.0 s
7215	Baud rate for the front port	19200 BAUD
7216	Parity and stop-bits for the front port	DIGSI V3
7221	Data format (protocol) for rear port	DIGSI V3
7222	Measured value format for the rear port	VDEW Extension
7224	Time gap between message packets for rear port	0.0 s
7225	Baud rate of the rear port	19200 BAUD
7226	Parity and stop-bits for the rear port	VDEW/DIGSI/LSA
7235	Programming via the rear port	YES
7400	**WAVEFORM CAPTURE**	
7402	Trigger for waveform capture	Trigger PU/Save TRIP
7410	Max length of a waveform capture record	3.00 s
7411	Amount of captured waveform prior to trigger	2.00 s
7412	Amount of captured waveform after trigger	0.20 s
7420	Fault values	Instantaneous value
7431	Discrete input initiated waveform capture time	0.50 s
7432	Keyboard initiated waveform capture duration	0.50 s
7490	Length of fault log (for previous LSA)	Fixed 660 Samples
7800	**DEVICE OPTIONS**	
7801	Underexcitation protection	EXISTENT
7802	Undervoltage protection	NONEXISTENT
7803	Overvoltage protection	EXISTENT
7804	Stator earth fault protection	EXISTENT
7805	Frequency protection	EXISTENT
7806	Forward power supervision	NONEXISTENT
7807	Reverse power protection	EXISTENT
7808	46-List of negative seq prot settings /char.	EXISTENT
7809	Overcurrent protection I>	EXISTENT
7810	Overcurrent protection I>>	NONEXISTENT
7811	Overcurrent protection Ie>	EXISTENT
7812	Stator overload protection	EXISTENT
7830	State of external trip function 1	EXISTENT
7831	State of external trip function 2	EXISTENT
7832	External trip function 3	EXISTENT
7833	External trip function 4	EXISTENT
7839	Trip circuit supervision	NONEXISTENT
7885	Select settings group	NONEXISTENT
7899	Rated Frequency	Line Freq of 50 Hz

Control

8200 RESETTING STORED DATA
Marshalling

6100 CONFIGURATION OF DISCRETE INPUTS

6101	Configuration of Discrete Input 1	
001	5086 >Stop valve tripped	act.HI
6102	Configuration of Discrete Input 2	
001	5323 >Block underexcitation protection	act.HI
002	5113 >Block forward power supervision	act.HI
6103	Configuration of Discrete Input 3	
001	5206 >Block frequency prot. f1 stage	act.LO
002	5207 >Block frequency prot. f2 stage	act.LO
003	5208 >Block frequency prot. f3 stage	act.HI
6104	Configuration of Discrete Input 4	
001	4526 >External trip 1	act.HI
6105	Configuration of Discrete Input 5	
001	4546 >External trip 2	act.HI
6106	Configuration of Discrete Input 6	
001	4566 >Trigger external trip 3	act.HI
6107	Configuration of Discrete Input 7	
001	4586 >Trigger external trip 4	act.HI
6108	Configuration of Discrete Input 8	
001	5146 >Reset memory for thermal replica I2	act.HI
002	1506 >Reset memory for thermal replica	act.HI

6200 CONFIGURATION OF SIGNAL RELAYS

6201	Configuration of signal Relay 1
001	5156 Unbalanced load: Current warning stage
6202	Configuration of signal Relay 2
001	1815 50-Phase inst. element TRIP
002	1516 49-Overload Alarm! Near Thermal Trip
003	1521 49-Overload TRIP
6203	Configuration of signal Relay 3
001	5096 Reverse power: Fault detection
6204	Configuration of signal Relay 4
001	5129 Forward power: Trip Pf> stage
6205	Configuration of signal Relay 5
001	5128 Forward power: Trip Pf< stage
6206	Configuration of signal Relay 6
001	5225 Frequency protection: Trip stage f1<
6207	Configuration of signal Relay 7
001	5227 Frequency protection: Trip stage f2<
002	5161 Unbalanced load: Trip of thermal stage
003	5160 Unbalanced load: Trip of current stage
6208	Configuration of signal Relay 8
001	5341 Underexc. prot. trip char. 1+2
002	5343 Underexc. prot. trip char. 3
003	5342 Underexc. prot. trip char. 1+2+Uexc<
004	6570 59-Overvoltage TRIP
005	6573 Overvoltage protection U>> trip
006	5229 Frequency protection: Trip stage f3<
6209	Configuration of signal Relay 9
001	1836 50N-Ground inst. element TRIP
6210	Configuration of signal Relay 10
001	5187 Stator earth fault: Trip U0 stage
002	5098 Reverse power: Trip with stop valve
003	5097 Reverse power: Trip
6211	Configuration of signal Relay 11
001	5341 Underexc. prot. trip char. 1+2
002	5343 Underexc. prot. trip char. 3
003	5342 Underexc. prot. trip char. 1+2+Uexc<
004	6570 59-Overvoltage TRIP

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 005  6573 Overvoltage protection U>> trip
 006  5187 Stator earth fault: Trip U0 stage
 007  5098 Reverse power: Trip with stop valve
 008  5097 Reverse power: Trip
 009  4537 External trip 1: General TRIP
 010  4557 External trip 2: General TRIP
 011  5229 Frequency protection: Trip stage f3<
6212  Signal relay 12
 001  4537 External trip 1: General TRIP

6300  CONFIGURATION OF LED INDICATORS
6301  Configuration of LED 1
 001  5341 Underexc. prot. trip char. 1+2                m
 002  5343 Underexc. prot. trip char. 3                  m
 003  5342 Underexc. prot. trip char. 1+2+Uexc<          m
6302  Configuration of LED 2
 001  5187 Stator earth fault: Trip U0 stage             m
6303  Configuration of LED 3
 001  5098 Reverse power: Trip with stop valve           m
 002  5097 Reverse power: Trip                           m
6304  Configuration of LED 4
 001  1815 50-Phase inst. element TRIP                   m
 002  1516 49-Overload Alarm! Near Thermal Trip          m
 003  1521 49-Overload TRIP                              m
6305  Configuration of LED 5
 001  6573 Overvoltage protection U>> trip               m
 002  6570 59-Overvoltage TRIP                           m
6306  Configuration of LED 6
 001  5225 Frequency protection: Trip stage f1<          m
 002  5227 Frequency protection: Trip stage f2<          m
 003  5229 Frequency protection: Trip stage f3<          m
6307  Configuration of LED 7
 001  5161 Unbalanced load: Trip of thermal stage        m
 002  5160 Unbalanced load: Trip of current stage        m
6308  Configuration of LED 8
 001  4577 External trip 3: General trip                 m
6309  Configuration of LED 9
 001  4597 External trip 4: General trip                 m
6310  Configuration of LED 10
 001  5156 Unbalanced load: Current warning stage        m
6311  Configuration of LED 11
 001  4537 External trip 1: General TRIP                 m
6312  Configuration of LED 12
 001  4557 External trip 2: General TRIP                 m
6313  Configuration of LED 13
 001  1836 50N-Ground inst. element TRIP                 m
6314  Configuration of LED 14
 001  5086 >Stop valve tripped                           nm

6400  CONFIGURATION OF TRIP CONTACTS
6401  Configuration of Trip Relay 1
 001F 1175 Trip test for trip relay 1 in progress
 002  5227 Frequency protection: Trip stage f2<
 003  5161 Unbalanced load: Trip of thermal stage
 004  5160 Unbalanced load: Trip of current stage
 005  1836 50N-Ground inst. element TRIP
 006  4577 External trip 3: General trip
 007  4597 External trip 4: General trip
6402  Configuration of Trip Relay 2
 001F 1176 Trip test for trip relay 2 in progress
 002  5341 Underexc. prot. trip char. 1+2
 003  5343 Underexc. prot. trip char. 3
 004  5342 Underexc. prot. trip char. 1+2+Uexc<
 005  6570 59-Overvoltage TRIP
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 006  6573 Overvoltage protection U>> trip
 007  5187 Stator earth fault: Trip U0 stage
 008  5229 Frequency protection: Trip stage f3<
 009  5098 Reverse power: Trip with stop valve
 010  5097 Reverse power: Trip
 011  1836 50N-Ground inst. element TRIP
 012  4537 External trip 1: General TRIP
 013  4557 External trip 2: General TRIP
 014  4597 External trip 4: General trip
6403  Configuration of Trip Relay 3
 001F 1177 Trip test for trip relay 3 in progress
 002  1836 50N-Ground inst. element TRIP
 003  4597 External trip 4: General trip
6404  Configuration of Trip Relay 4
 001F 1178 Trip test for trip relay 4 in progress
 002  5341 Underexc. prot. trip char. 1+2
 003  5343 Underexc. prot. trip char. 3
 004  5342 Underexc. prot. trip char. 1+2+Uexc<
 005  6570 59-Overvoltage TRIP
 006  6573 Overvoltage protection U>> trip
 007  5187 Stator earth fault: Trip U0 stage
 008  5229 Frequency protection: Trip stage f3<
 009  5098 Reverse power: Trip with stop valve
 010  5097 Reverse power: Trip
 011  1836 50N-Ground inst. element TRIP
 012  4537 External trip 1: General TRIP
 013  4557 External trip 2: General TRIP
 014  4597 External trip 4: General trip
6405  Configuration of Trip Relay 5
 001F 1179 Trip test for trip relay 5 in progress
 002  5187 Stator earth fault: Trip U0 stage
 003  5098 Reverse power: Trip with stop valve
 004  5097 Reverse power: Trip
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Settings Settings group A

1100	MACHINE AND POWERSYSTEM DATA	
1103	Rated apparent power of the machine	235.3 MVA
1104	Rated power factor of the machine	0.850
1105	Rated current of the machine	8.625 kA
1106	Rated voltage of the machine (phase-phase)	15.75 kV
1107	Reciprocal value of synchronous reactance	0.44
1108	Earthing condition of the machine star-point	Starpt. high resist.
1200	**INSTRUMENT TRANSFORMER DATA**	
1201	Primary rated CT current	10.000 kA
1202	Primary rated VT voltage	15.00 kV
1204	Rated secondary voltage (L-L)	100 V
1205	Polarity of current transformers	Starpt. toward mach.
1206	Correction angle CT W0 (base angle)	2.80 °
1207	Correction angle CT W1 (slope)	-0.30 °
1400	**UNDEREXCITATION PROTECTION**	
1401	State of the underexcitation protection	ON
1402	State of the excitation voltage supervision	ON
1403	Setting of excitation voltage supervision	3.20 V
1404	Long time delay (characteristic 1 or 2)	10.00 s
1405	Short time delay (characteristic 1 or 2)	1.50 s
1406	Time delay (characteristic 3)	0.50 s
1407	Reset delay after trip	1.00 s
1500	**UNDEREXC. PROT. CHARACTERISTICS**	
1501	Conductance intersect of char. 1	0.45

1502	Inclination angle of char. 1	80 °
1503	Conductance intersect of char. 2	0.36
1504	Inclination angle of char. 2	90 °
1505	Conductance intersect of char. 3	1.10
1506	Inclination angle of char. 3	80 °
1700	**OVERVOLTAGE**	
1701	State of the overvoltage protection	ON
1702	Pick-up value of the U> stage	115 V
1703	Pick-up value of the U>> stage	126 V
1704	Time delay for trip U>	10.00 s
1705	Time delay for trip U>>	1.80 s
1706	Reset delay after trip	1.00 s
1900	**STATOR EARTH FAULT PROTECTION**	
1901	State of the stator earth fault protection	ON
1902	Pick-up value of displacement voltage U0>	5.0 V
1903	Time delay for trip	0.30 s
1904	Reset delay after trip	1.00 s
2100	**OVER/UNDER-FREQUENCY PROTECTION**	
2101	State of the frequency protection	ON
2102	Pick-up value for stage f1	49.50 Hz
2103	Number of meas. repetitions stage f1	32
2104	Pick-up value for stage f2	47.50 Hz
2105	Number of meas. repetitions stage f2	47
2106	Pick-up value for stage f3	47.50 Hz
2107	Number of meas. repetitions stage f3	15
2108	Pick-up value for stage f4	50.00 Hz
2109	Number of meas. repetitions stage f4	10
2110	Minimum operating voltage for frequency prot.	40 V
2300	**REVERSE POWER PROTECTION**	
2301	State of the reverse power protection	ON
2302	Pick-up value of reverse power	-0.50 %
2303	Time delay for trip with stop valve open	30.00 s
2304	Time delay for trip with stop valve closed	2.00 s
2305	Reset delay after trip	1.00 s
2400	**UNBALANCED LOAD PROTECTION**	
2401	46 - State of negative sequence O/C prot.	ON
2402	Continously permissible neg. sequence current	5 %
2403	Time delay for warning stage	10.00 s
2404	Thermal time constant	2400 s
2405	Thermal warning stage in % of trip temperature	90 %
2406	Pick-up value for high current stage	80 %
2407	Trip time delay for high current stage	9.00 s
2408	Reset delay after trip	1.00 s
2500	**OVERCURRENT PROTECTION I>**	
2501	State of overcurrent I> stage	ON
2502	Pick-up value I> stage	0.91 I/In
2503	Time delay for trip I>	10.00 s
2504	Reset delay after trip	1.00 s
2505	State of undervoltage seal-in	OFF
2506	Pick-up value of undervoltage seal-in	75.0 V
2507	Duration of undervoltage seal-in	3.10 s
2700	**OVERCURRENT PROTECTION Ie>**	
2701	State of O/C Ie> stage	ON
2702	Pick-up value of earth current	20 mA
2703	Time delay for trip Ie>	0.60 s
2704	Reset delay after trip	1.00 s
2705	Setting Ie< supervision	0.0 mA

2800	**49-THERMAL OVERLOAD PROTECTION**	
2801	State of the stator overload protection	ON
2802	49-K factor for thermal overload protection	0.92
2803	49-Winding time constant for thermal O/L prot	50 s
2804	49- Thermal alarm stage	100 %
2805	49-Temperature rise at rated secondary current	100 °C
2806	Temperature input (PT100/4..20mA)	NONEXISTENT
2807	Maximum temperature (PT100/4..20mA)	100 °C
2900	**MEASURED VALUE SUPERVISION**	
2901	State of measured values supervision	ON
2903	Symmetry threshold for current monitoring	0.10 I/In
2904	Symmetry factor for current monitoring	0.10
2905	Summation threshold for current monitoring	0.10 I/In
2906	Factor for current summation monitoring	0.10
2907	Symmetry threshold for voltage monitoring	50 V
2908	Symmetry factor for voltage monitoring	0.75
3000	**INCLUSION OF AN EXTERNAL TRIP FUNCTION 1**	
3001	State of external trip function 1	ON
3002	Time delay of external trip function 1	0.00 s
3003	Reset delay after trip 1 has been initiated	1.00 s
3100	**INCLUSION OF AN EXTERNAL TRIP FUNCTION 2**	
3101	State of external trip function 2	ON
3102	Time delay of external trip function 2	0.00 s
3103	Reset delay after trip 2 has been initiated	1.00 s
3200	**INCLUSION OF AN EXTERNAL TRIP FUNCTION 3**	
3201	State of external trip function 3	ON
3202	Time delay of external trip function 3	0.00 s
3203	Reset delay after trip	1.00 s
3300	**INCLUSION OF AN EXTERNAL TRIP FUNCTION 4**	
3301	State of external trip function 4	ON
3302	Time delay of external trip function 4	0.00 s
3303	Reset delay after trip	1.00 s