Archiv: SIPROTEC 4 7U... / DIGSI 4 / G01
Projekt: Beispiel_Anlage
Datei: 2_Large_Unit-1.pdf
Erst.-Nr.: 600006

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EXTERNAL INCOUPLINGS
110kV SWGR PROT 1 TRIP
110kV SWGR PROT 2 TRIP

EXTERNAL INCOUPLINGS
GEN TFR OLTC TRIP
GEN TFR OIL TEMP TRIP
GEN TFR WINDG TEMP TRIP
GEN TFR BUCHZ PROT TRIP
GEN TFR P REL DEVICE TRIP

EXTERNAL INCOUPLINGS
U AUX TFR NLTC TRIP
U AUX TFR OIL TEMP TRIP
U AUX TFR WINDG TEMP TRIP
U AUX TFR BUCHZ PROT TRIP
U AUX TFR P REL DEVICE TRIP

EXTERNAL INCOUPLINGS
TRIP FROM EXCITERSYSTEM CAN 1
TRIP FROM EXCITERSYSTEM CAN 2

EXTERNAL INCOUPLINGS
GT TRIP SYSTEM CAN 1
GT TRIP SYSTEM CAN 2
OVER-/UNDERFREQUENCY CAN 1
OVER-/UNDERFREQUENCY CAN 2

HV CB
-T1 L1,L2,L3
GENERATOR TRANSFORMER 10BAT
GEN CB
SFC 1)
EXCITATION TRANSFORMER 10MKC01 3)
10MKA -G
-T21 L1,L2,L3 MEASURING
-T11 L1,L2,L3 MEASURING
-T8 10/√3 / 0,1/√3 / 0,1/3 kV 45VA CL0,5
-T6 10/√3 / 0,1/√3 / 0,1/3 kV 45VA CL0,2
-T5 10/√3 / 0,1/√3 / 0,1/3 kV 45VA CL0,2
-T1 L1,L2,L3 MEASURING
U AUX TFR 10BBT01
U AUX CB 1 10BBA ..kV
U AUX CB 2 10BBB ..kV
-R49 7XR6004
-R50 3PP13
-U49 7XT71
-U46 BANDPASS 7XT34
-U47 7XT33 20Hz 50Hz DC/AC POWER SUPPLY
=10BAB11 =10BAB11 -T1 27 kVA 20s 10/√3 / 0,5 kV
=10BAB11 -R1 Earthing Resistor 400/5A 15VA
-T47
-R59 10A 150mV
-U591 7KG

-F13 7UT613 1/2

J L1 L2 L3	DIFF GEN TFR	87T
J L1 L2 L3	NEUTR DIFF GEN TFR	87TN 3)
J L1 L2 L3	EARTH CURRENT U AUX TFR	51UAT
J E		
J EE		
J E		
U L1 L2 L3		
U E		

-F22 7UM612 1/2

J L1 L2 L3	OVERCURRENT GEN TFR	50,51
J EE	EARTH CURRENT GEN TFR	51N
U L1 L2 L3 N	IMPEDANCE GEN TFR 3 Ph.	21 3)
U E		

-F12 7UM612 1/2

J L1 L2 L3	OVEREXCITATION	24
J EE	NEUTR E/F Uo>	59N
U L1 L2 L3	OVERCURRENT U AUX TFR I>	51UAT
U E	SHORT CIRCUIT U AUX TFR I>>	50UAT
	EARTH CURRENT U AUX TFR	51NUAT

-F23 7UT613 1/2

J L1 L2 L3	DIFF U AUX TFR	87UAT
J L1 L2 L3	OVERCURRENT U AUX TFR	51UAT
J L1 L2 L3	Ref	
J L1 L2 L3	Ref	
J E		
J EE		
J E		
U L1 L2 L3		
U E		

-F21 7UM622 1/1

I L1 L2 L3	OVERLOAD	49
I EE1 Ise	OVERCURRENT I>,I>> EXC TFR	51,50 3)
I2 L1 L2 L3	OVEREXCITATION	24
I EE2	STATOR E/F Uo>	59N
U L1 L2 L3 N	IMPEDANCE	21
Ux (3Uo)	REVERSE PWR	32R
TD1 (Udc)	UNDEREXC	40
TD2	UNBALANCED LOAD	46
TD3 (Uexc)	OUT OF STEP	78
	UNDERFREQUENCY St. 1	81-1
	UNDERFREQUENCY St. 2	81-2
	OVERFREQUENCY St. 1	81-1
	OVERFREQUENCY St. 2	81-2
	OVERVOLTAGE	59
	BREAKER FAILURE	BF
	INADVERTENT ENERGIZATION	50/27 3)
	FUSE FAILURE	60FL 3)
	DC-VOLTAGE TIME	67G 1)

-F11 7UM622 1/1

I L1 L2 L3	GENERATOR DIFF	87G
I EE1 Ise	ROTOR E/F	64R
I2 L1 L2 L3	STATOR E/F 100%	64G
I EE2	STATOR E/F Uo>	59N
U L1 L2 L3 N	IMPEDANCE	21
Ux (3Uo)	REVERSE PWR	32R
TD1 (Udc)	UNDEREXC	40
TD2	UNBALANCED LOAD	46
TD3 (Uexc)	OUT OF STEP	78
	UNDERFREQUENCY St. 1	81-1
	UNDERFREQUENCY St. 2	81-2
	OVERFREQUENCY St. 1	81-1
	OVERFREQUENCY St. 2	81-2
	OVERVOLTAGE	59
	BREAKER FAILURE	BF
	INADVERTENT ENERGIZATION	50/27 3)
	FUSE FAILURE	60FL 3)

Protection System 1

-F11 7UM622
GENERATOR DIFF — WARNING / TRIP
ROTOR E/F
STATOR E/F 100%
STATOR E/F Uo>
IMPEDANCE — Z1B 3)
REVERSE PWR — t1, t2 2)
UNDEREXC
UNBALANCED LOAD
OUT OF STEP
UNDERFREQUENCY St. 1
UNDERFREQUENCY St. 2
OVERFREQUENCY St. 1
OVERFREQUENCY St. 2
OVERVOLTAGE
BREAKER FAILURE GEN CB
INADVERTENT ENERGIZATION 3)
BE 1 VT MCB TRIPPED
BE 2 GEN CB OPEN
BE 3 GEN CB CLOSED
BE 4 TRIP FROM EXCITERSYSTEM CAN 1
BE 5
BE 6 TRIP FROM RAPID SHUT DOWN CAN 1 1)
BE 7 TRIP FROM OVER-/UNDERFREQUENCY CAN 1
BE 8 BREAKER FAILURE GEN CB
BE 9
BE 10-11-12 , BE13,BE14,BE15 stehen noch zur Verfügung

-F12 7UM612
OVEREXCITATION
NEUTR E/F Uo>
OVERCURRENT I> U AUX TFR
OVERCURRENT I>> U AUX TFR
EARTH CURRENT U AUX TFR Wdg.1
BE 1
BE 2
BE 3
BE 4
BE 5
BE 6
BE 7 TRIP FROM Substation Prot CAN 1
BE 8
BE 9
BE 10 TRIP FROM OLTC GEN TFR
BE 11 TRIP FROM OIL TEMP GEN TFR
BE 12 TRIP FROM WINDG TEMP GEN TFR
BE 13
BE 14
BE 15

L- 7PA27

-F13 7UT613
DIFF GENERATOR TRANSFORMER
NEUTR DIFF GENERATOR TRANSFORMER 3)
EARTH CURRENT I> U AUX TFR Wdg.2
BE 1 TRIP FROM BUCHZ U AUX TFR
BE 2 TRIP FROM P REL DEVICE U AUX TFR
BE 3
BE 4
BE 5

Protection System 2

-F21 7UM622
GENERATOR OVERLOAD
OVERCURRENT I>, I>> EXCITATION TRANSFORMER 3)
OVEREXCITATION
STATOR E/F Uo>
IMPEDANCE — Z1B 3)
REVERSE PWR — t1, t2 2)
UNDEREXC
UNBALANCED LOAD
OUT OF STEP
UNDERFREQUENCY St. 1
UNDERFREQUENCY St. 2
OVERFREQUENCY St. 1
OVERFREQUENCY St. 2
OVERVOLTAGE
BREAKER FAILURE GEN CB
INADVERTENT ENERGIZATION 3)
DC-VOLTAGE TIME 1)
BE 1 VT MCB TRIPPED
BE 2 GEN CB OPEN
BE 3 GEN CB CLOSED
BE 4 TRIP FROM EXCITERSYSTEM CAN 2
BE 5 START UP FREQ CONV DISCONNECTOR CLOSED 1)
BE 6 TRIP FROM RAPID SHUT DOWN CAN 2 1)
BE 7 TRIP FROM OVER-/UNDERFREQUENCY CAN 2
BE 8 BREAKER FAILURE GEN CB
BE 9
BE 10-11-12 , BE13,BE14,BE15 stehen noch zur Verfügung

-F22 7UM612
OVERCURRENT GENERATOR TRANSFORMER
EARTH CURRENT GENERATOR TRANSFORMER
IMPEDANCE GENERATOR TRANSFORMER 3) OVERCURRENT DIRECTIONAL
BE 1 VT MCB TRIPPED
BE 2
BE 3
BE 4
BE 5
BE 6
BE 7 TRIP FROM Substation Prot CAN 2
BE 8
BE 9
BE 10 TRIP FROM NLTC U AUX TFR
BE 11 TRIP FROM OIL TEMP U AUX TFR
BE 12 TRIP FROM WINDG TEMP U AUX TFR
BE 13
BE 14
BE 15

L- 7PA27

-F23 7UT613
DIFF UNIT AUXILIARY TRANSFORMER
OVERCURRENT UNIT AUXILIARY TRANSFORMER
BE 1 TRIP FROM BUCHZ GEN TFR
BE 2 TRIP FROM P REL DEVICE GEN TFR
BE 3
BE 4
BE 5

Legende:
1) GT with SFC
2) ST
3) if required
4) ü like Gen CT (min: ü(GT CT) / 8)
r rooted
P1*,P2* Aux Relay because of rooted contacts

Large_Unit-1.pdf

	YU	SIPROTEC	7UM6 001

SIPROTEC 4
Unit Connection >200 MVA
Var 1a (with Gen CB, without LOR)

Date	02-10-24	
Drawn	Donhauser	
Appr.	N.Mueller	
Norm	Dr.Herrmann	

Siemens AG

GENERATOR PROTECTION
Single line diagram
(1)E50414-L0...-S100
Sheet 1-1 Sh.
Orig./Repl.f./Repl.by

Rev.	Remarks	Date	Name