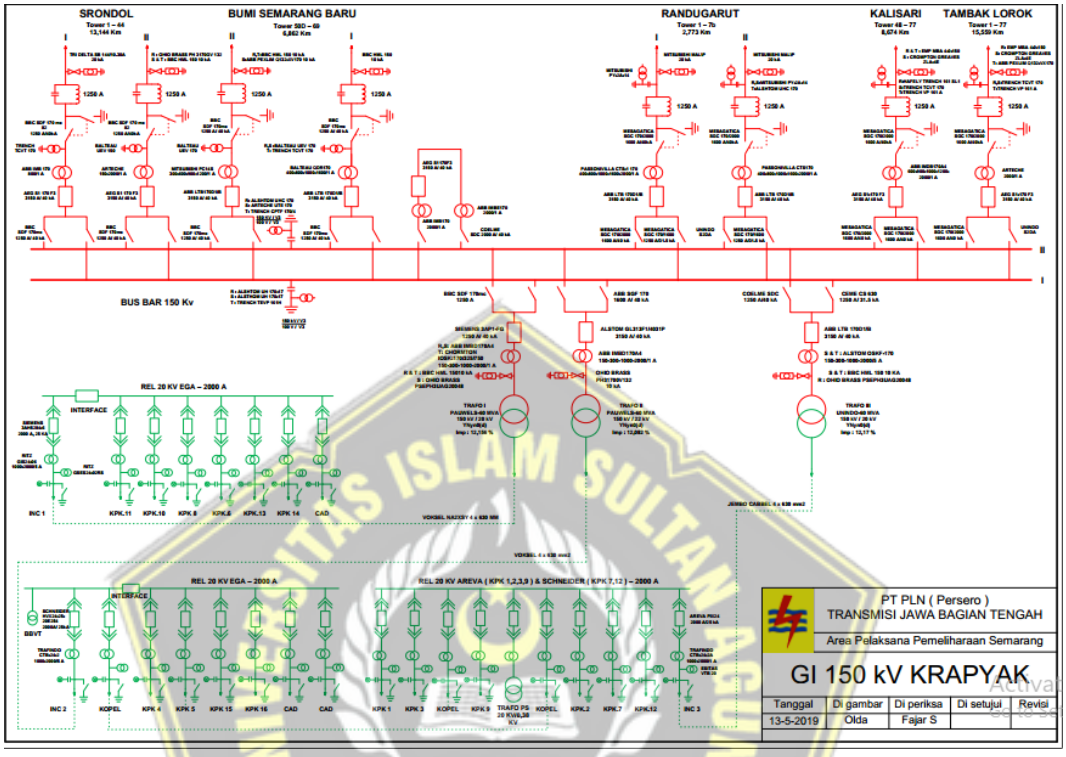
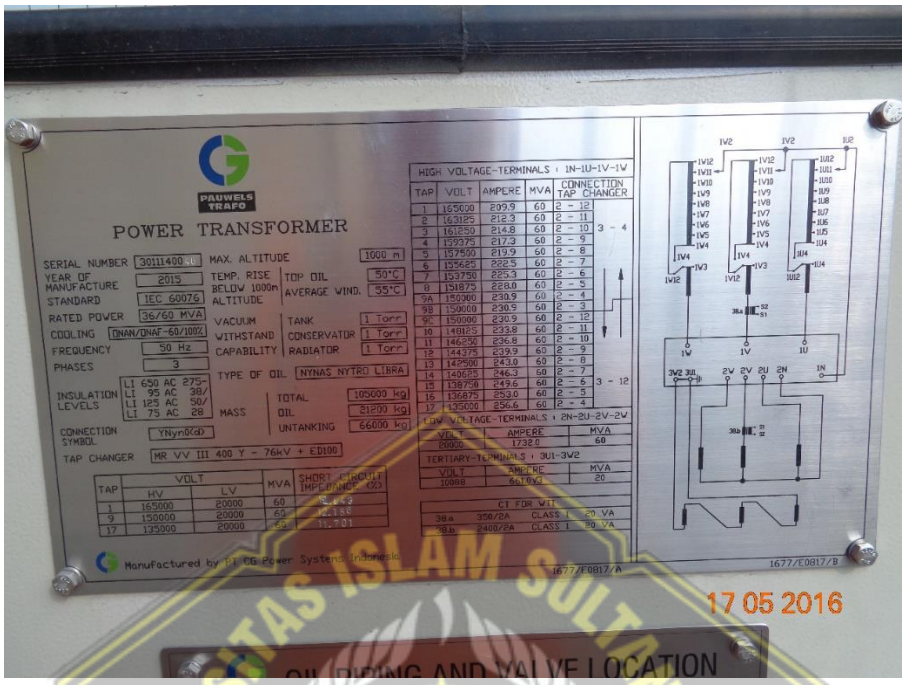
LAMPIRAN

1. Single line diagram Gardu Indu Krapyak Semarang



2. Name Plate Trafo 1 60 MVA Gardu Induk Krapyak Semarang



3. Data Beban *Feeder* Bulan Agustus 2020

DATA BEBAN PENYULANG UP2D JATENG & DIY

BULAN Agustus 2020

300

Gardu Induk	Data Trafo					Data Penyulang						Beban Penyulang				Bulanan	
	Unit	Daya (MVA)	Teg. Sec. (kV)	Set. OLTC (kV)	In (A)	Feeder	Ratio CT		In (A)	I> (A)	Panjang Jar. (kms)	JAM 10:00		JAM 19:00		Tertinggi	Tertinggi
							Pri.	Sec.				Tertinggi tercapai	Tertinggi Normal	Tertinggi tercapai	Tertinggi Normal	tercapai	Normal
Krapyak	I	60	20		1.732	KPK06	400	1	630	480		303	201	318	275	318	275
						KPK10	400	1	630	480		158	105	160	103	160	105
						KPK11	400	1	630	480		60	52	57	51	60	52
						KPK13	400	1	630	480		173	118	128	81	173	118
						KPK14	400	1	630	480		143	114	146	134	146	134
						KPK08	400	1	630	480		322	250	208	171	322	250
	II	60	20		1.732	KPK04	400	1	630	480		386	129	381	156	386	156
						KPK05	400	1	630	480		74	66	92	86	92	86
						KPK15	400	1	630	480		240	160	162	106	240	160
						KPK16	400	1	630	480		144	103	142	130	144	130
	III	60	20		1.732	KPK01	400	1	630	480		28	27	28	28	28	28
						KPK02	400	1	630	480		130	64	153	55	153	64
						KPK03	400	1	630	480		194	158	208	173	208	173
						KPK07	400	1	630	480		63	22	21	10	63	22
						KPK09	400	1	630	480		0	0	0	0	0	0
						KPK12	400	1	630	480		130	88	71	55	130	88

4. Data Impedansi Penghantar

IMPEDANSI KAWAT PENGHANTAR MENURUT SPLN 64: 1995

Tahanan (R) dan reaktansi (X_L) pengantar AAAC tegangan 20 kV

(SPLN 64: 1985)

Luas Penampang mm^2	*Jari^{2}mm*	*Urat*	*GMR (mm)*	*Impedansi urutan positif (Ohm / km)*	*Impedansi urutan Nol (Ohm / km)*
16	2,2563	7	1,6380	2,0161 + j 0,4036	2,1641 + j 1,6911
25	2,8203	7	2,0475	1,2903 + j 0,3895	1,4384 + j 1,6770
35	3,3371	7	2,4227	0,9217 + j 0,3790	1,0697 + j 1,6665
50	3,9886	7	2,8957	0,6452 + j 0,3678	0,7932 + j 1,6553
70	4,7193	7	3,4262	0,4608 + j 03572	0,6088 + j 1,6447
95	5,4979	19	4,1674	0,3096 + j 0,3449	0,4876 + j 1,6324
120	6,1791	19	4,6837	0,2688 + j 0,3376	0,4168 + j 1,6324
150	6,9084	19	5,2365	0,2162 + j 0,3305	0,3631 + j 1,6180
185	7,6722	19	5,8155	0,1744 + j 0,3239	0,3224 + j 1,6114
240	8,7386	19	6,6238	0,1344 + j 0,3158	0,2824 + j 1,6034

5. Data KHA (Kuat Hantar Arus) Penghantar

Arus beban terus menerus maksimum, harus lebih kecil dari Kuat Hantar Arus (KHA) dari penghantar.

Besarnya KHA ini terlihat pada Tabel VIII.

Tabel VIII - Daftar KHA penghantar yang dihitung atas dasar kondisi-kondisi berikut:
- kecepatan angin 0,6 m/ detik
- suhu keliling akibat sinar matahari 35° C
- suhu penghantar maksimum 80° C
- bila tidak ada angin maka KHA dapat dikali dengan 0,7

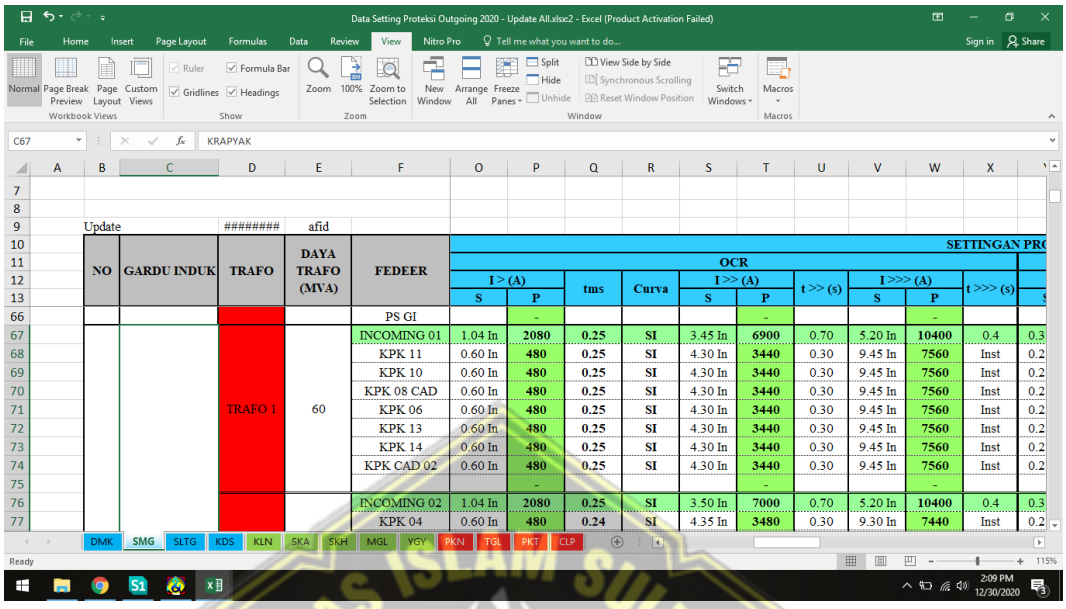
Luas penampang (mm2)	KHA terus menerus, untuk penghantar AAC (A)	KHA terus menerus, untuk penghantar AAAC (A)
16	110	105
25	145	135
35	180	170
50	225	210
70	270	255
95	340	320
120	390	365
150	455	425
185	520	490
240	625	585

6. Data *Setting Relay Incoming* Gardu Induk Krapyak 150 kV

23. Pengaman Cadangan LV

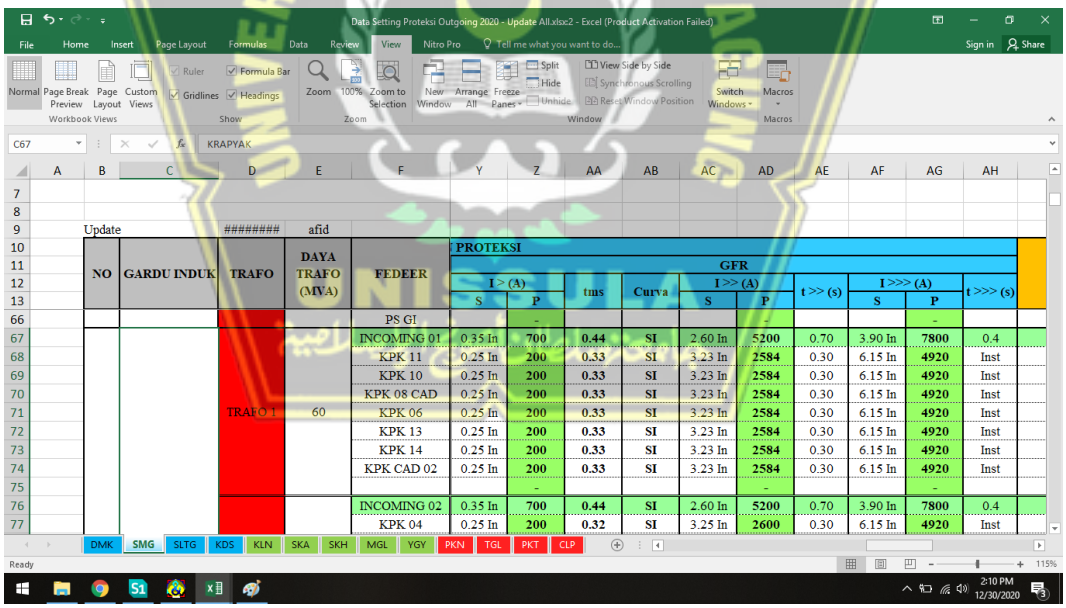
- Merk : Schneider
- Type : P122
- Setting Arus OCR : 5,2 x In
- Setting Arus GFR : 1,75 x Io
- Setting Waktu OCR : 0,25
- Setting Waktu GFR : 0,45

7. Data *Setting Relay* OCR GI Krapyak



NO	GARDU INDUK	TRAFO	DAYA TRAFO (MVA)	FEDEER	OCR									
					I > (A)		tms	Curva	I >> (A)		t >> (s)	I >>> (A)		t >>> (s)
					S	P			S	P		S	P	
				PS GI		-				-			-	
				INCOMING 01	1.04 In	2080	0.25	SI	3.45 In	6900	0.70	5.20 In	10400	0.4
				KPK 11	0.60 In	480	0.25	SI	4.30 In	3440	0.30	9.45 In	7560	Inst
				KPK 10	0.60 In	480	0.25	SI	4.30 In	3440	0.30	9.45 In	7560	Inst
				KPK 08 CAD	0.60 In	480	0.25	SI	4.30 In	3440	0.30	9.45 In	7560	Inst
		TRAFO 1	60	KPK 06	0.60 In	480	0.25	SI	4.30 In	3440	0.30	9.45 In	7560	Inst
				KPK 13	0.60 In	480	0.25	SI	4.30 In	3440	0.30	9.45 In	7560	Inst
				KPK 14	0.60 In	480	0.25	SI	4.30 In	3440	0.30	9.45 In	7560	Inst
				KPK CAD 02	0.60 In	480	0.25	SI	4.30 In	3440	0.30	9.45 In	7560	Inst
						-				-			-	
				INCOMING 02	1.04 In	2080	0.25	SI	3.50 In	7000	0.70	5.20 In	10400	0.4
				KPK 04	0.60 In	480	0.24	SI	4.35 In	3480	0.30	9.30 In	7440	Inst

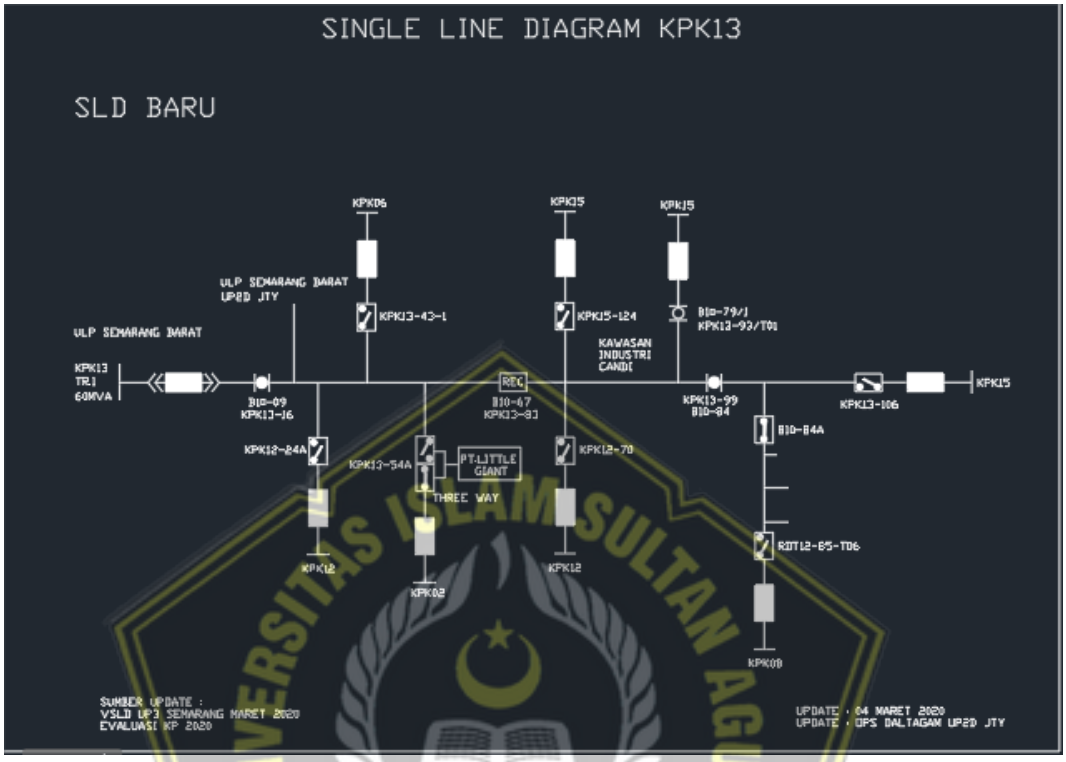
8. Data *Setting Relay* GFR GI Krapyak



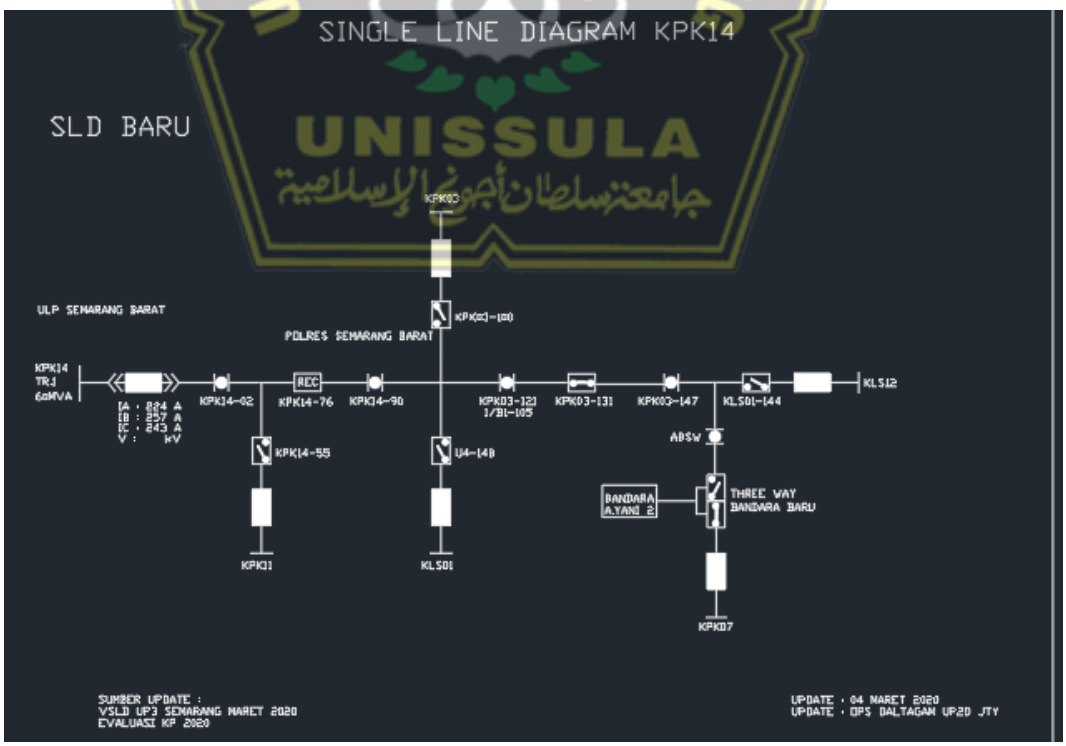
NO	GARDU INDUK	TRAFO	DAYA TRAFO (MVA)	FEDEER	PROTEKSI GFR									
					I > (A)		tms	Curva	I >> (A)		t >> (s)	I >>> (A)		t >>> (s)
					S	P			S	P		S	P	
				PS GI		-				-			-	
				INCOMING 01	0.35 In	700	0.44	SI	2.60 In	5200	0.70	3.90 In	7800	0.4
				KPK 11	0.25 In	200	0.33	SI	3.23 In	2584	0.30	6.15 In	4920	Inst
				KPK 10	0.25 In	200	0.33	SI	3.23 In	2584	0.30	6.15 In	4920	Inst
				KPK 08 CAD	0.25 In	200	0.33	SI	3.23 In	2584	0.30	6.15 In	4920	Inst
		TRAFO 1	60	KPK 06	0.25 In	200	0.33	SI	3.23 In	2584	0.30	6.15 In	4920	Inst
				KPK 13	0.25 In	200	0.33	SI	3.23 In	2584	0.30	6.15 In	4920	Inst
				KPK 14	0.25 In	200	0.33	SI	3.23 In	2584	0.30	6.15 In	4920	Inst
				KPK CAD 02	0.25 In	200	0.33	SI	3.23 In	2584	0.30	6.15 In	4920	Inst
						-				-			-	
				INCOMING 02	0.35 In	700	0.44	SI	2.60 In	5200	0.70	3.90 In	7800	0.4
				KPK 04	0.25 In	200	0.32	SI	3.25 In	2600	0.30	6.15 In	4920	Inst

9. Data SLD *Feeder* Gardu Induk Krapyak

Feeder Krapyak 13



Feeder Krapyak 14



ANALISIS KOORDINASI SETTING OVER CURRENT, GRAUND FAULT RELAY DAN RECLOSER PADA FEEDER TRAFO 1 60 MVA GARDU INDUK KRAPYAK SEMARANG

acc 29/12'2020

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