

PRILOG

SEME TIRISTORSKIH REGULATORA

SADRZAJ

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TIRISTORSKI REGULISANI ISPRAVLJACI TRI-TROFAZNI+1K - TRI400/480 60...1500A+1K	17	2-18
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Datum izr. 15.10.2010
 Projektant Istvan Nadj
 Kontrolisao Istvan Nadj
 Kontak tel eldrive@eunet.rs

WWW.ELEKTRODRIVE.COM

+381 64 1272573

Seme tiristorskih regulatora

Sadržaj

List
 Listova

TIRISTORSKI REGULISANI ISPRAVLJACI-TRI

TIPOVI UREDJAJA TRI - TROFAZNI +1K

LEGENDA ANALOGNIH SIGNALA:

T I P	I [A]	DIMENZIJE	MREZNA PRIGUSNICA	ULTRABRZI OSIGURACI	
				AC	DC
TRI 400/480- 60		Visina= 400mm Sirina= 300mm Dubina= 310mm Masa= 16kg	3xMMP-55 67	3x63A/660V	2x80A/660V
TRI 400/480- 90			1xTMP-75 90	3x100A/660V	2x125A/660V
TRI 400/480- 125			1xTMP-90 110	3x125A/660V	2x160A/660V
TRI 400/480- 210			1xTMP-150 180	3x200A/660V	2x250A/660V
TRI 400/480- 280		Visina= 460mm Sirina= 300mm Dubina= 400mm Masa= 20kg	1xTMP-225 275	3x315A/660V	2x355A/660V
TRI 400/480- 400			1xTMP-340 420	3x400A/660V	2x500A/660V
TRI 400/480- 600		Visina= 610mm Sirina= 300mm Dubina= 460mm Masa= 105kg	1xTMP-425 520	3x500A/660V	2x800A/660V
TRI 400/480- 850			1xTMP-650 790	3x710A/660V	2x1000A/660V
TRI 400/480- 1500		Ormanska izvedba	1xTMP-1250 XX	3x3x630A/660V	2x3x630A/660V

Wn	ZADATA BRZINA
Xn	STVARNA BRZINA
Yn	IZLAZ IZ REGULATORA BRZINE
Wi	ZADATA STRUJA (STRUJNI LIMIT)
Xi	STVARNA STRUJA ROTORA
Y	IZL. IZ REG. STRUJE (ULAZ U IMP.J)
Xu	ROTORSKI NAPON
Wnd1	DODATNI ULAZ U REGULATOR BRZINE
Wnd2	DODATNI ULAZ U REGULATOR BRZINE
Udu1	DODATNI ULAZ 1
Udu2	DODATNI ULAZ 2
Udu3	DODATNI ULAZ 3
SINH1	SINHRONIZACIONI NAPON 1
SINH2	SINHRONIZACIONI NAPON 2
SINH3	SINHRONIZACIONI NAPON 3
Pdeo	PROPORCIONALNI UTICAJ
Imax	STRUJNA GRANICA
I*R	I*R KOMPENZACIJA
DRIFT	DRIFT

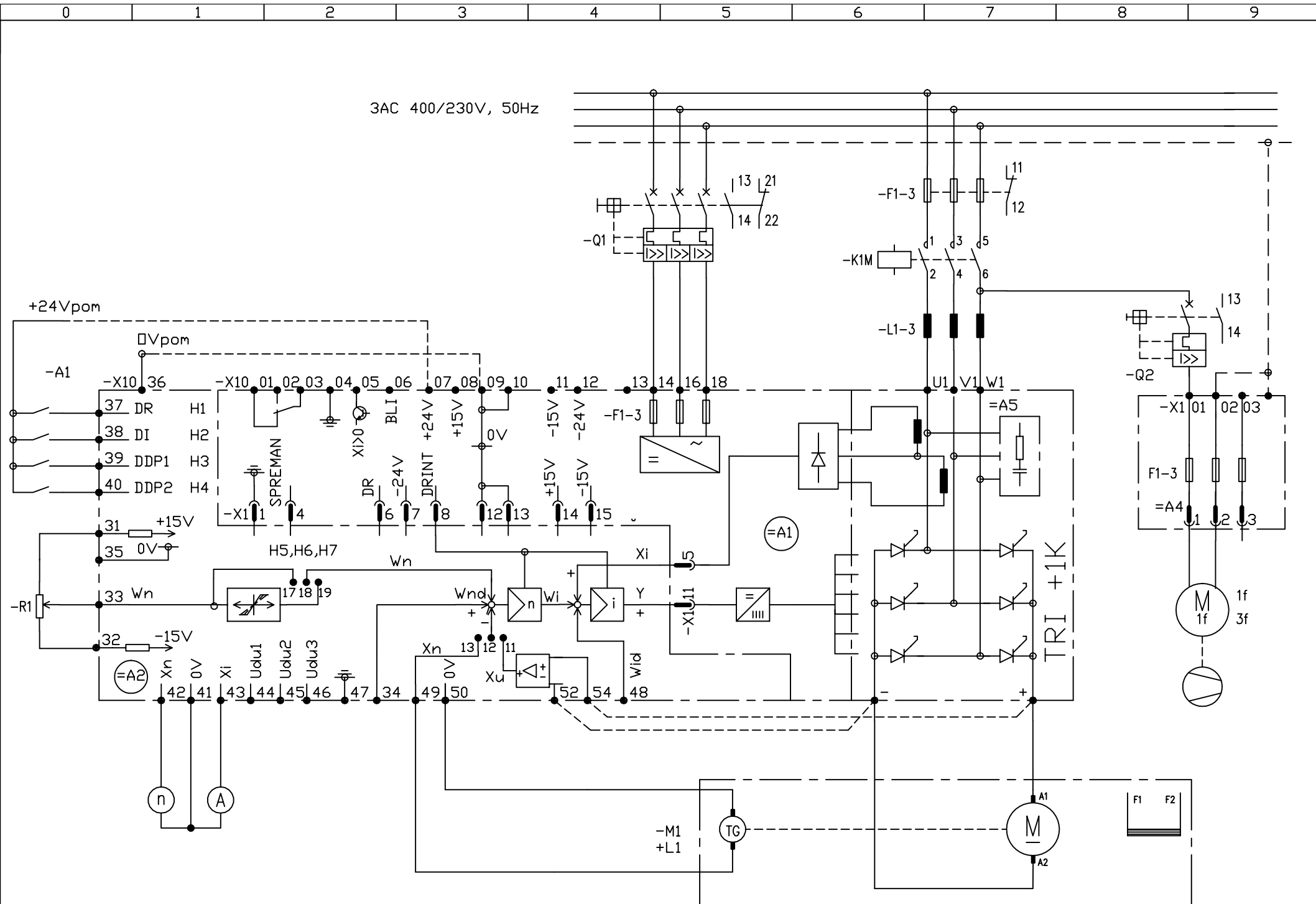
FUNKCIONALNE CELINE:

=A1	TROFNAP +4K	TROFAZNO NAPAJANJE (IZVORI POM. NAPONA, ZASTITE,IMPULSNIM TRAFODIMA
=A2	ADAPTREG	ADAPTIVNI REGULATOR (REG. BRZINE I STRUJE, RAMPA,APLIKACIONI DODACI
=A5	TROFZAS	TROFAZNA PRENAPONSKA ZASTITA (6 RC CLANOVA)
+TRI		HLADNJAK SA TIRISTORIMA I STRUJNIM TRANSFORMATORIMA

LEGENDA BINARNIH SIGNALA:

DR	DEBLOKADA REGULATORA
BR	BLOKADA REGULATORA
DBR	DODATNA BLOKADA REGULATORA
BLI	BLOKADA IMPULSA
DI	DEBLOKADA INTEGRATORA
DDP1	DEBLOKADA DODATNOG POJACAVACA1
DDP2	DEBLOKADA DODATNOG POJACAVACA2
DRINT	DEBLOKADA INTEGRATORA
OK	ISPRAVAN
ER	NEISPRAVAN

Datum izr.	5.11.2010	www.elektrodrive.com	Mob: 00-381-64-1272573	TIPOVI UREDJAJA TRI-TROFAZNI	TRI400/480 60...1500A+1K	+ TRI	List
Projektant	Istvan Nad						
Kontrolisao	Istvan Nad				TRI-TROFAZNI+1K		
Kontakt tel	024/554-166						Listova



Datum izr. 5.11.2010
 Projektant Istvan Nad
 Kontrolisao Istvan Nad
 Kontak tel 024/554-166

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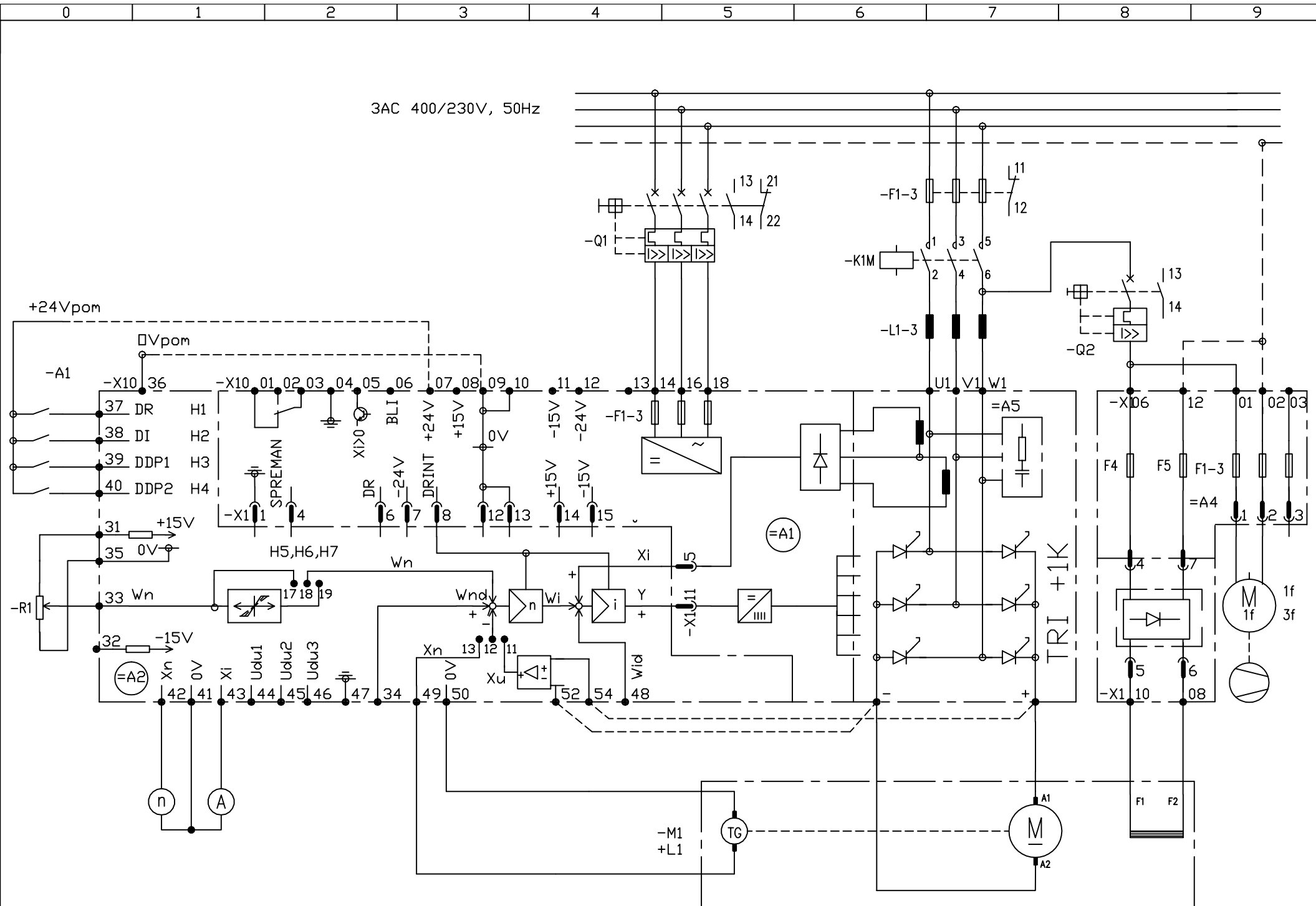
STRUJNA SEMA

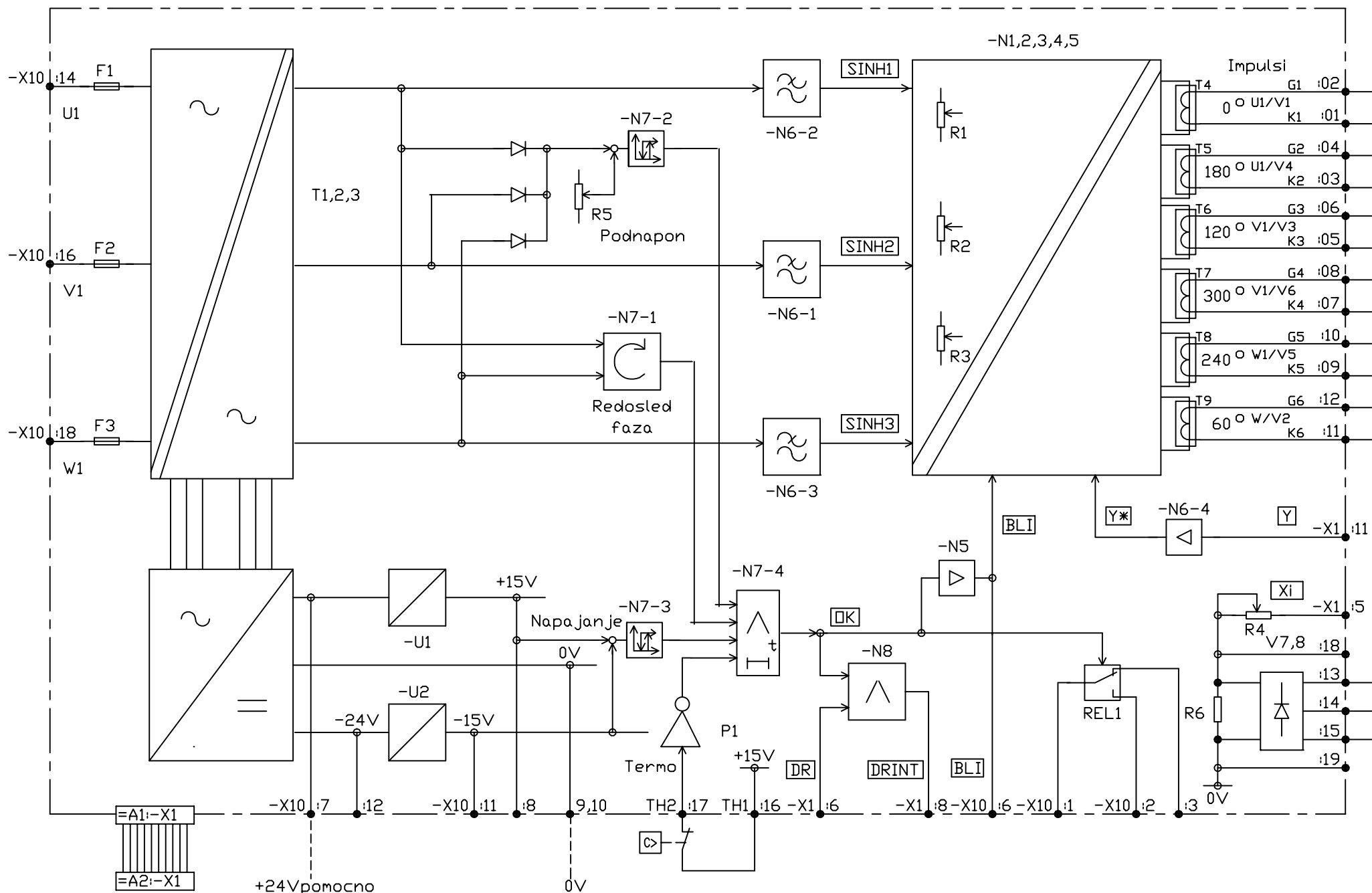
TIROSTORSKI REGULISANI ISPRAVLJAC

TRI-TROFAZNI+1K bez Pobude

+ TRI

List 1
 Listova





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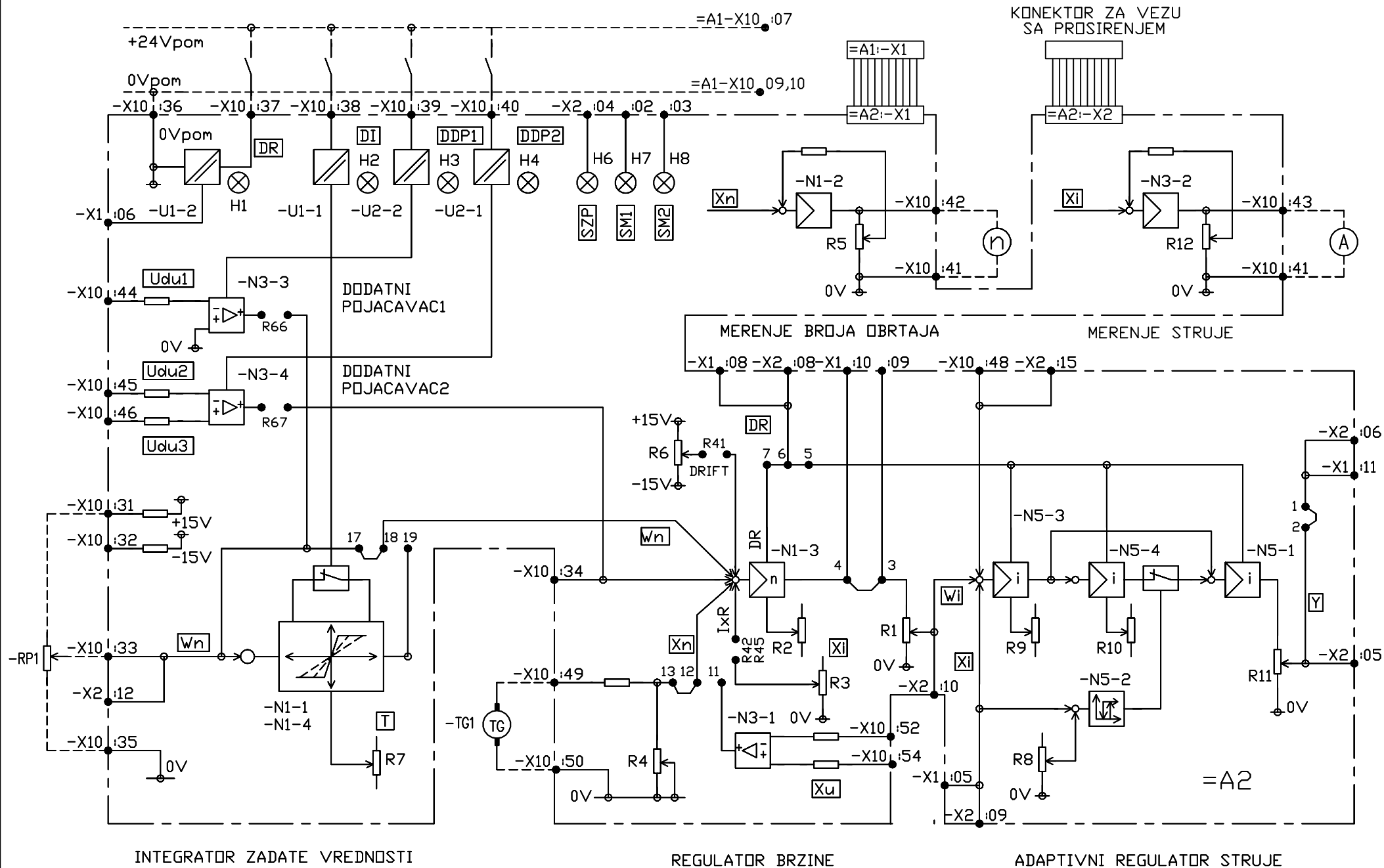
PREGLEDNA SEMA

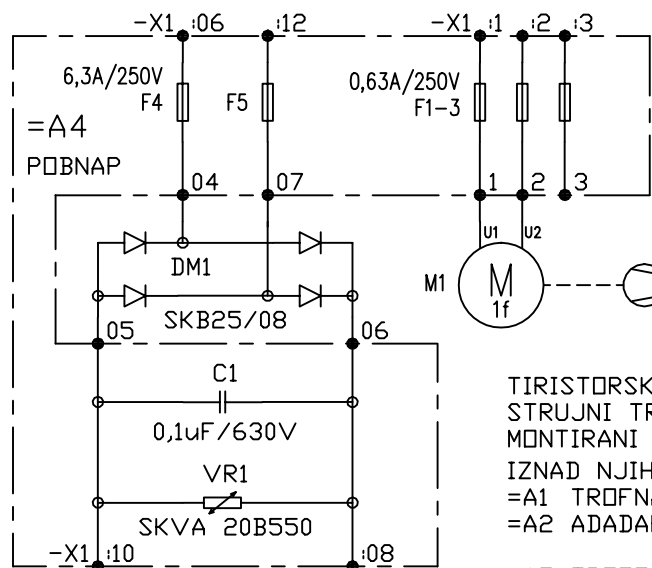
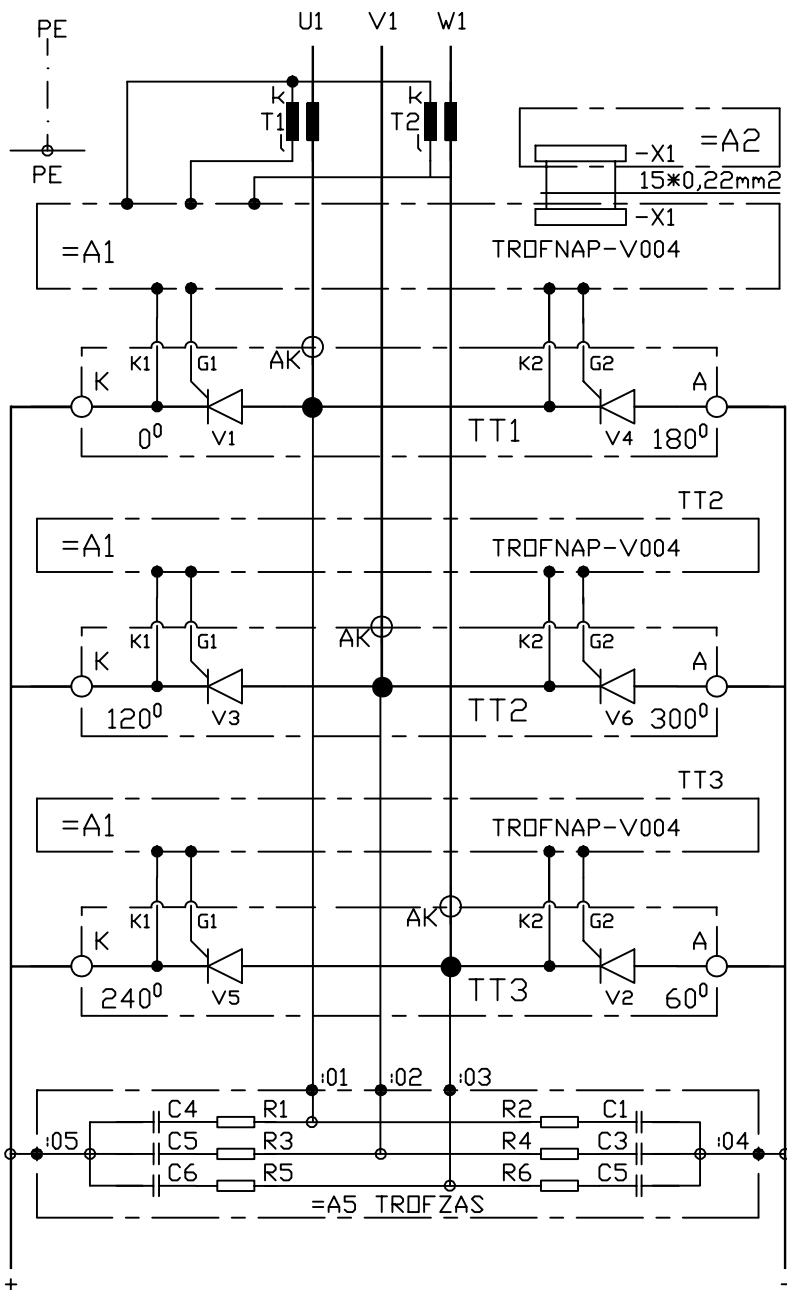
=A1 TROFNAPE - V004

TRI-TROFAZNI+1K

=A1
 +TRI

List 2
 Listova





ULAZ	IZLAZ
3x400V 50/60Hz	0 - 420Vdc
3x500V 50/60Hz	0 - 520Vdc

MOTORVENTILATOR SAMO KOD
UREDJAJA SA PRINUDNOM
VENTILACIJOM

TIRISTORSKI BLOKOVI, ISPRAVLJAC ZA POBUDU,
STRUJNI TRAFOD I ENERGETSKE SINE
MONTIRANI SU NA ZAJEDNICKI HLADNJAK.
IZNAD NJIH MONTIRANI SU:
=A1 TROFNAP+1K (TROFAZNO NAPAJANJE IMPULSNI TRAFOD)
=A2 ADAPTREG (ADAPTIVNI REGULATOR)

=A5 TROFZAS (RC ZASTITA)

MOGUCA JE PRIGRADNJA DODATNIH
=A6 DODREG (DODATNI REGULATOR).
SEMA MODULA =A2 ADAPTREG, KOJI JE
CITAVU FAMILIJU UREDJAJA, DATA JE
POSEBNOM CRTEZU.

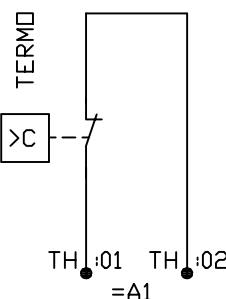
TERMO KONTAKT SE UGRADJUJE U
TIPSKJE STRUJE > 125A.

MODULA NPR.

ISTI ZA
NA

UREDJAJE

TIP UREDJAJA	Idn [A]	TIP TT-MODULA	HLADJENJE	STRUJNI TRAFOD
TRI 400/480 - 60		6 x TT105	PRIRODNO 0,37K/W	VAC50/50mA
TRI 400/480 - 90		6 x TT105		VAC100/100mA
TRI 400/480 - 125		6 x TT162	PRINUDNO 120cbm/h QLS 190-200 0,06K/W	VAC250/250mA
TRI 400/480 - 210		6 x TT162		MAK62/30 600/1A
TRI 400/480 - 280		6 x TT250	PRINUDNO 800cbm/h	MAK62/30 800/1A
TRI 400/480 - 400		6 x TT250		MAK74/40 800/1A
TRI 400/480 - 600		6 x TT500	PRINUDNO	MAK86/60 1500/1A
TRI 400/480 - 850		6 x TT500		
TRI 400/480 - 1500		12 x TZ850	PRINUDNO	



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Kontrolisao Istvan Nad
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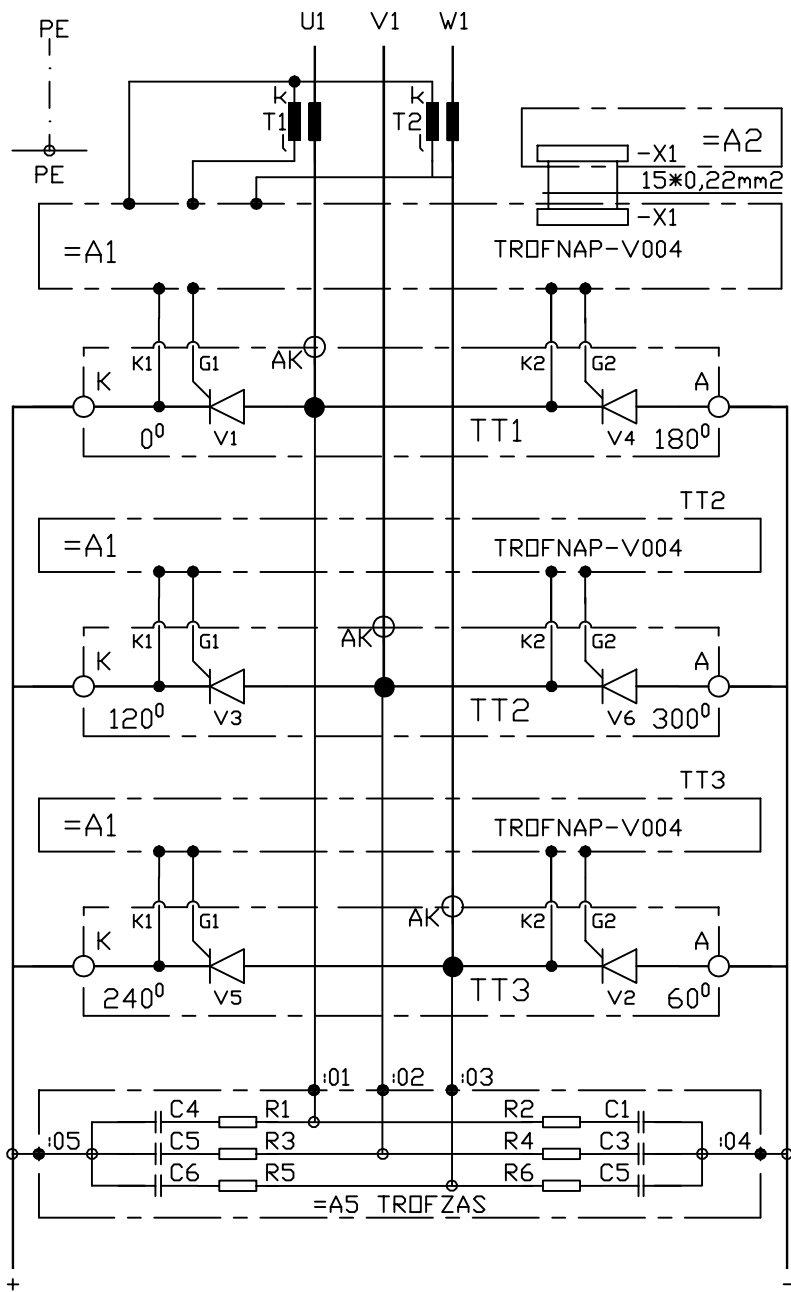
Mob: 00-381-64-1272573

STRUJNA SEMA

TRI400/480-60..1500A

TRI-TROFAZNI+1K

List 4
Listova



ULAZ	IZLAZ
3x400V 50/60Hz	0 - 420Vdc
3x500V 50/60Hz	0 - 520Vdc

MOTORVENTILATOR SAMO KOD
UREDJAJA SA PRINUDNOM
VENTILACIJOM

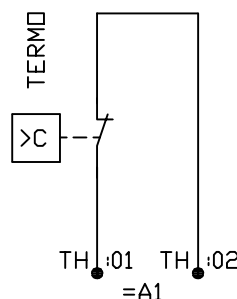
TIRISTORSKI BLOKOVI, ISPRAVLJAC ZA POBUDU,
STRUJNI TRAFODI I ENERGETSKE SINE
MONTIRANI SU NA ZAJEDNICKI HLADNJAK.
IZNAD NJIH MONTIRANI SU:
=A1 TROFNAP+1K (TROFAZNO NAPAJANJE IMPULSNI TRAFODI)
=A2 ADAPTREG (ADAPTIVNI REGULATOR)

=A5 TROFZAS (RC ZASTITA)

MOGUCA JE PRIGRADNJA DODATNIH MODULA NPR.
=A6 DODREG (DODATNI REGULATOR).
SEMA MODULA =A2 ADAPTREG, KOJI JE ISTI ZA
CITAVU FAMILIJU UREDJAJA, DATA JE NA
POSEBNOM CRTEZU.

TERMO KONTAKT SE UGRADJUJE U UREDJAJE
TIPSKE STRUJE > 125A.

TIP UREDJAJA	Idn [A]	TIP TT-MODULA	HLADJENJE	STRUJNI TRAFOD
TRI 400/480 - 60		6 x TT105	PRIRODNO 0,37K/W	VAC50/50mA
TRI 400/480 - 90		6 x TT105		VAC100/100mA
TRI 400/480 - 125		6 x TT162	PRINUDNO 120cbm/h QLS 190-200 0,06K/W	VAC250/250mA
TRI 400/480 - 210		6 x TT162		MAK62/30 600/1A
TRI 400/480 - 280		6 x TT250	PRINUDNO 800cbm/h	MAK62/30 800/1A
TRI 400/480 - 400		6 x TT250		MAK74/40 800/1A
TRI 400/480 - 600		6 x TT500	PRINUDNO	MAK86/60 1500/1A
TRI 400/480 - 850		6 x TT500		
TRI 400/480 - 1500		12 x TZ850	PRINUDNO	



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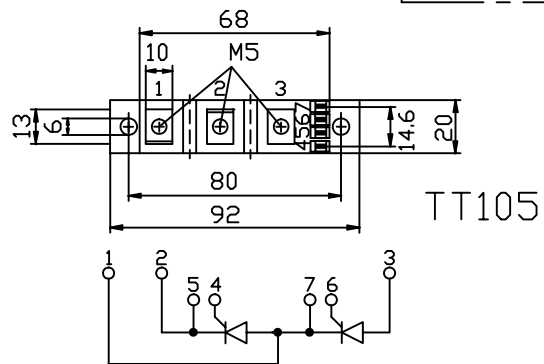
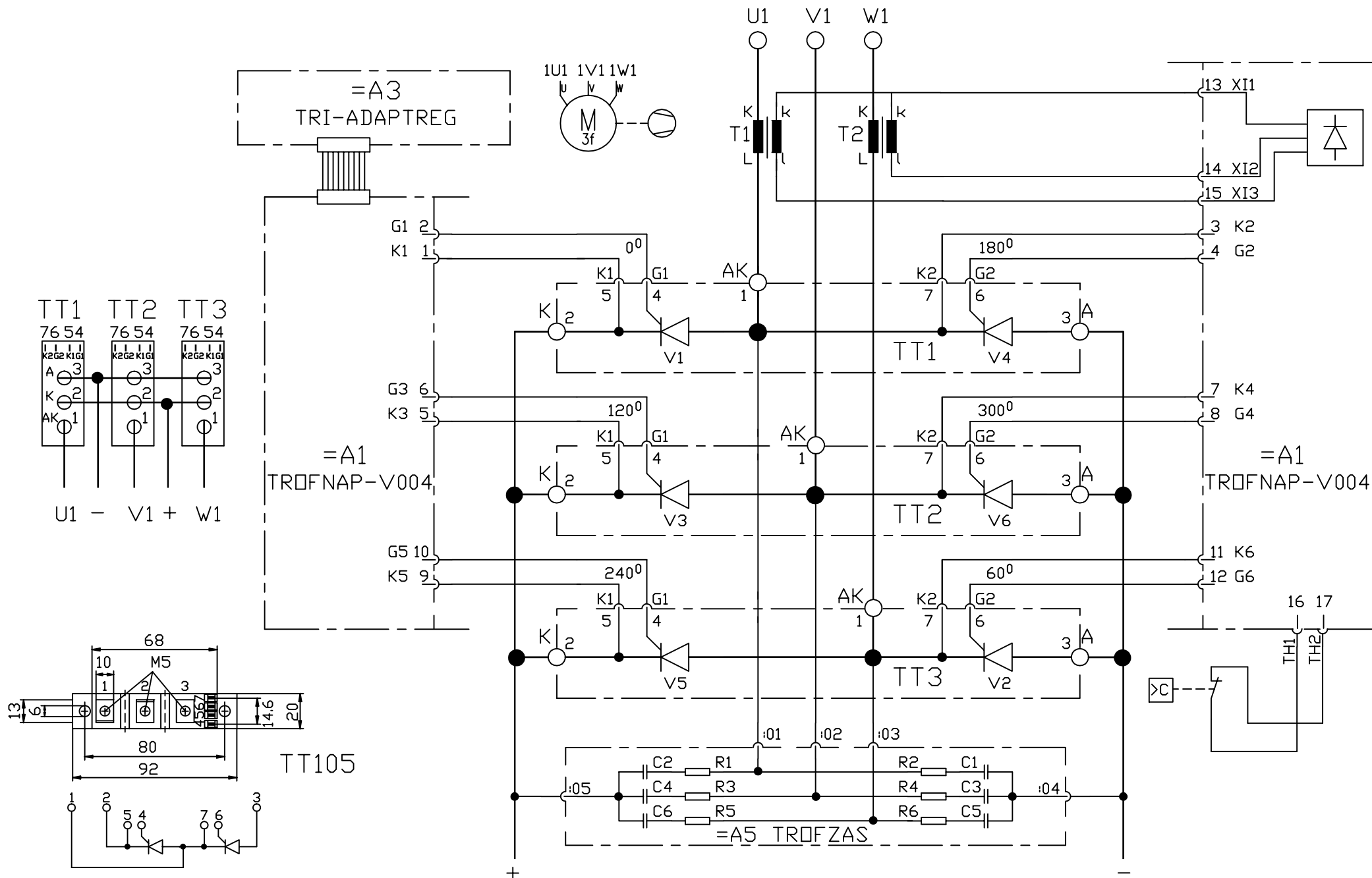
STRUJNA SEMA

TRI400/480-60..1500A

+ TRI

TRI-TROFAZNI+1K bez Pobude

List 4
Listova



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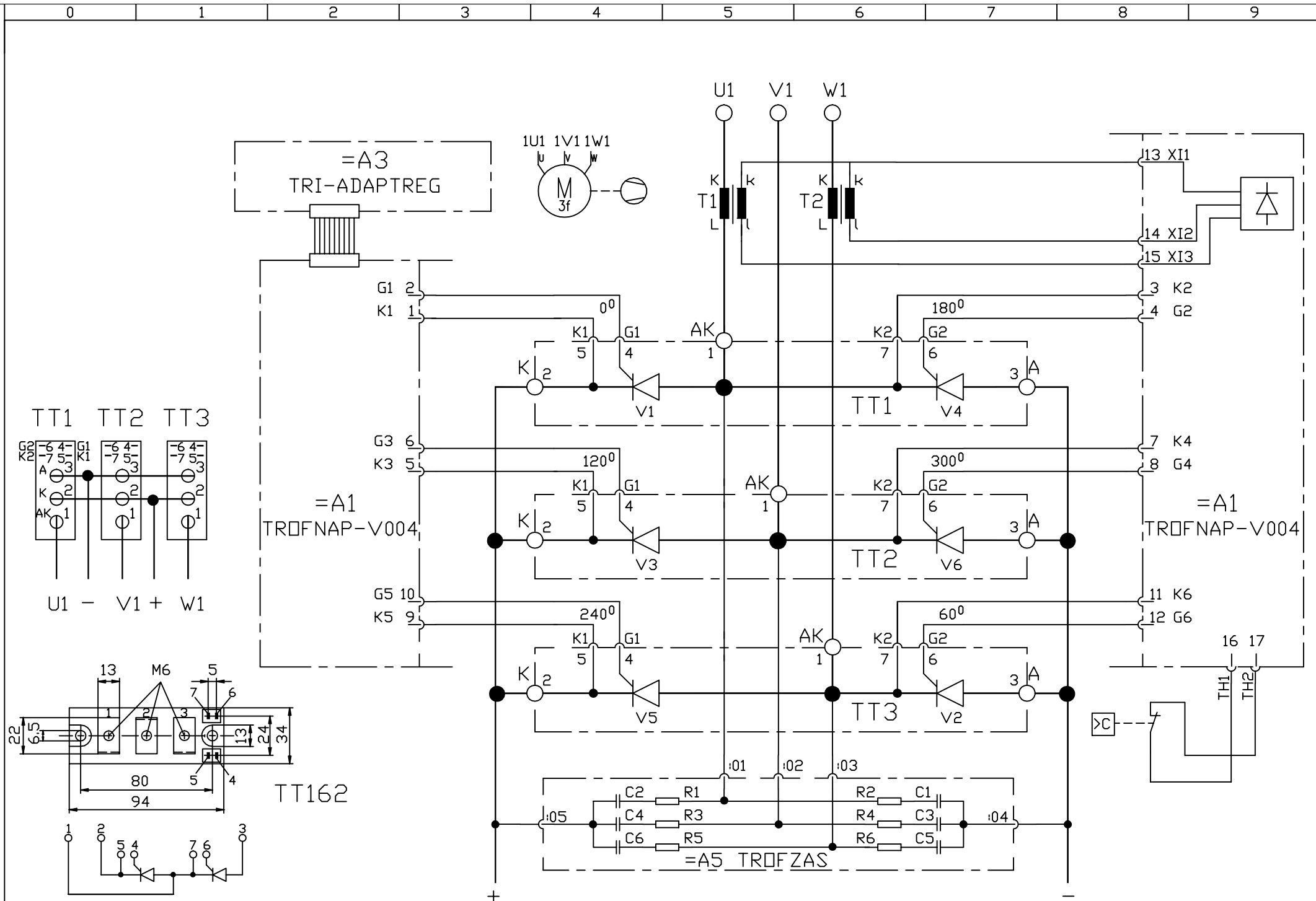
STRUJNA SEMA

TT105 TRI400/-60,90A

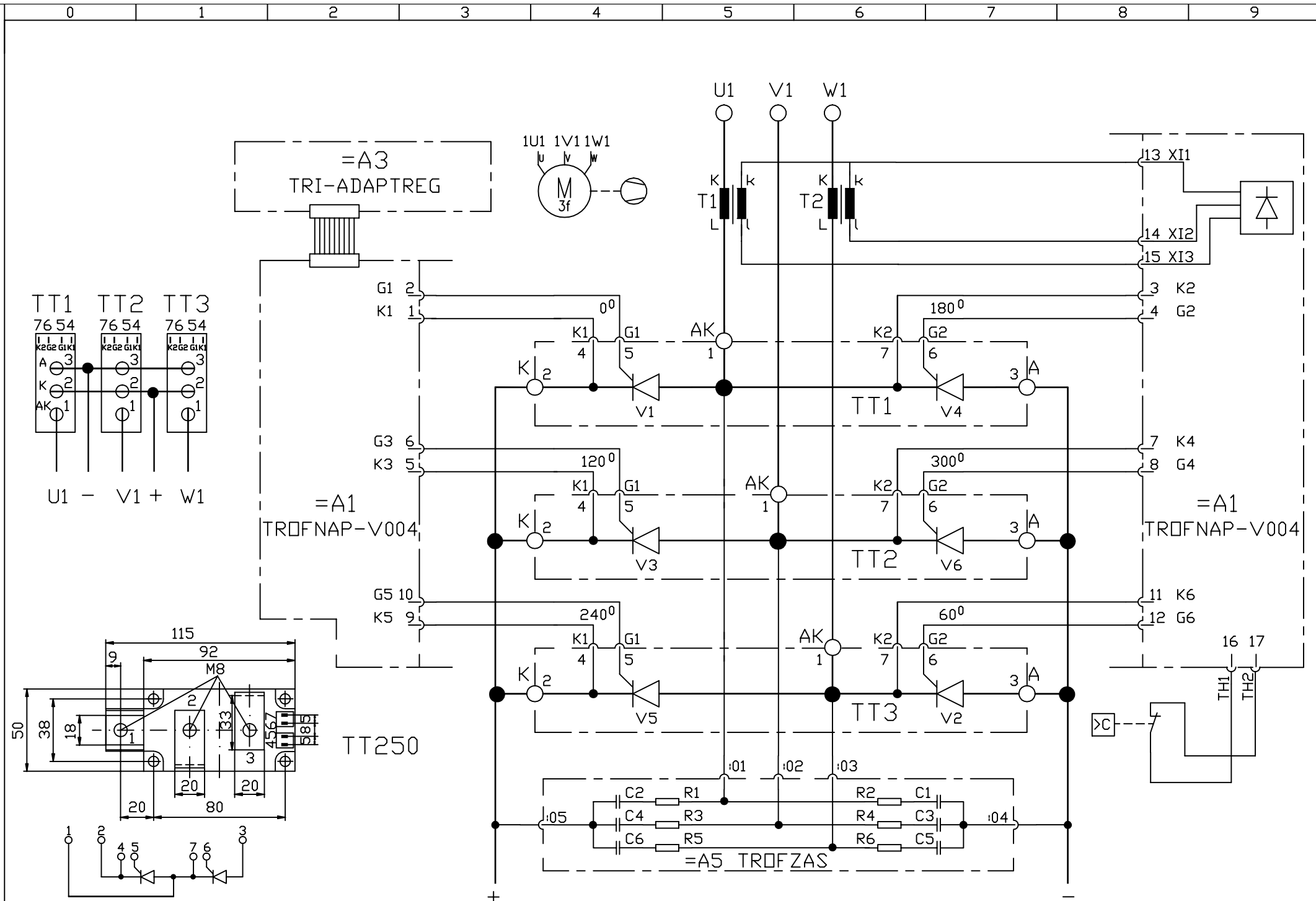
TRI-TROFAZNI +1K

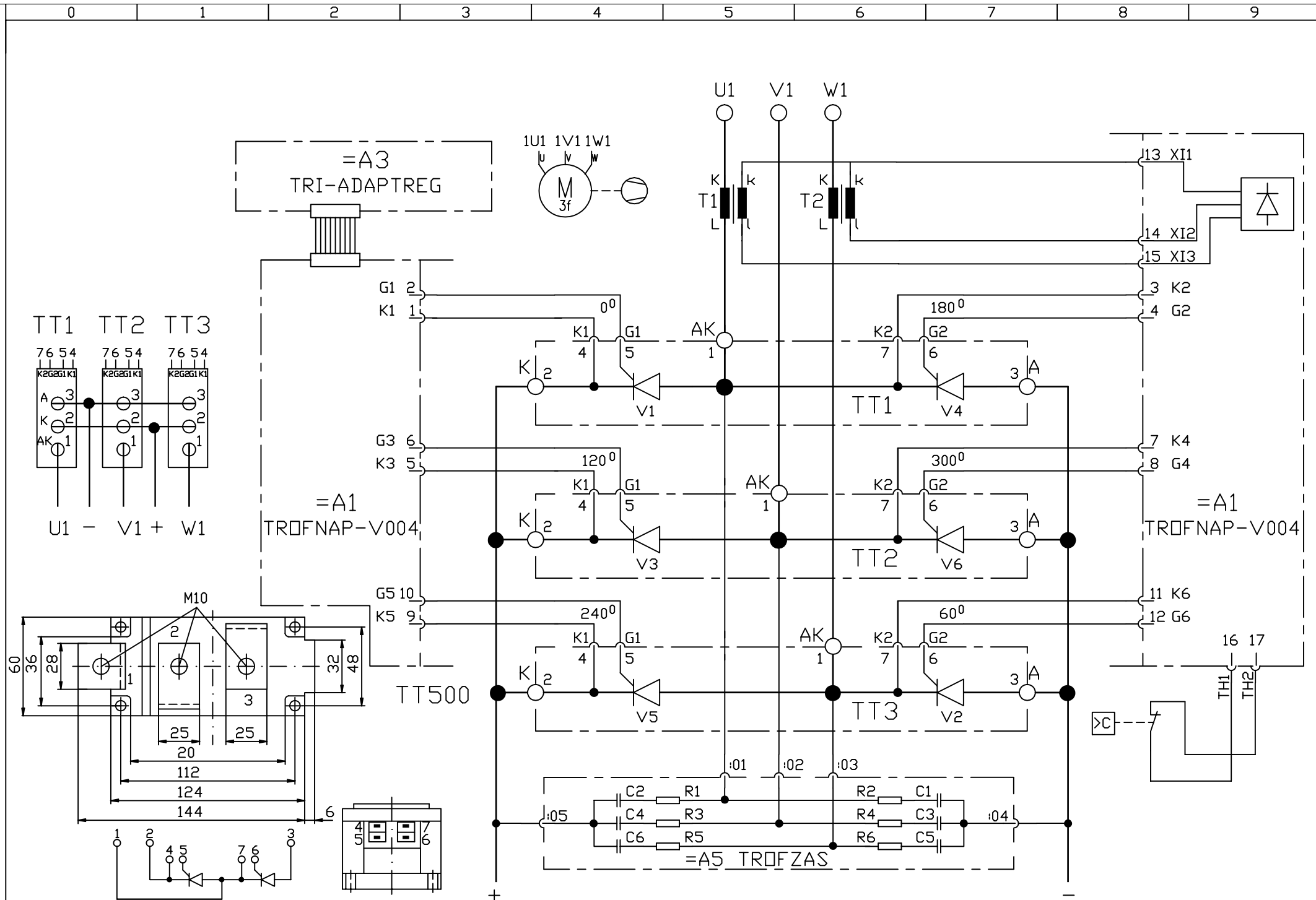
+TRI

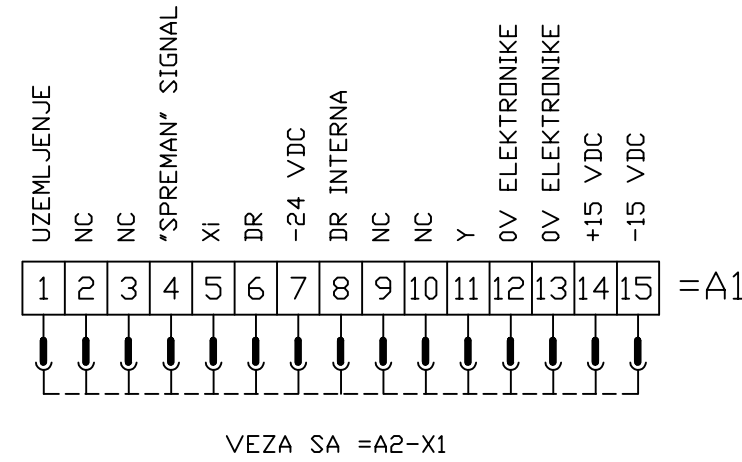
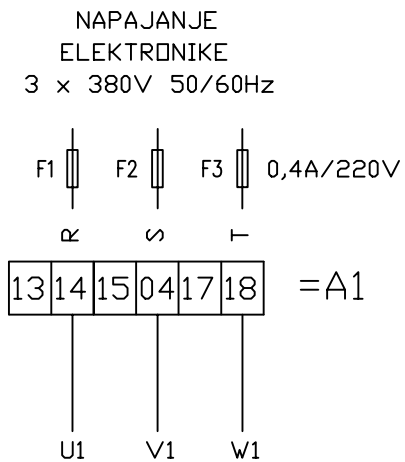
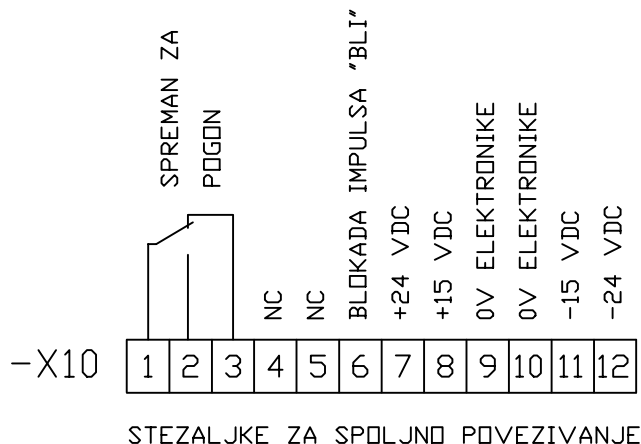
List 4
 Listova



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Projektant	Istvan Nad				TRI-TROFAZNI+1K	List 4
Kontrolisao	Istvan Nad					Listova
Kontak tel	024/554-166					







SPOLJNA OPTERETIVOST IZVORA

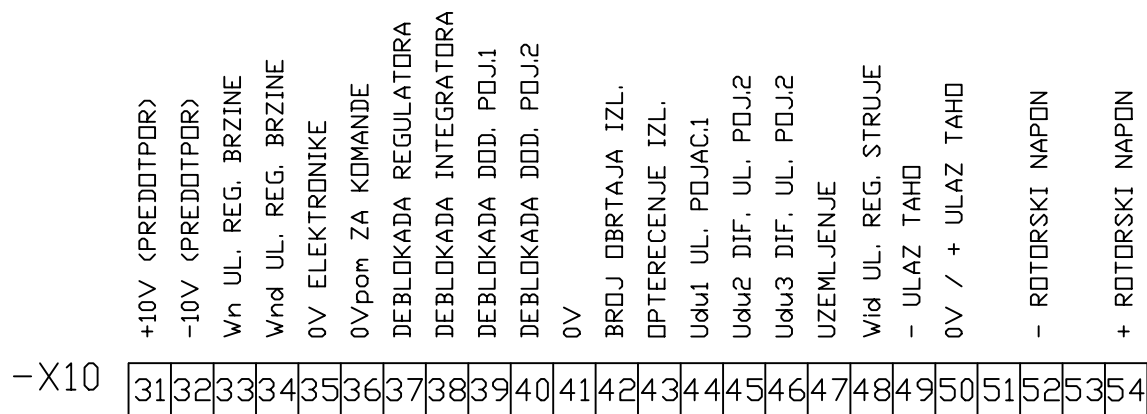
IZVOR	DODATNO
+24V	100mA
-24V	100mA
+15V	50mA
-15V	50mA



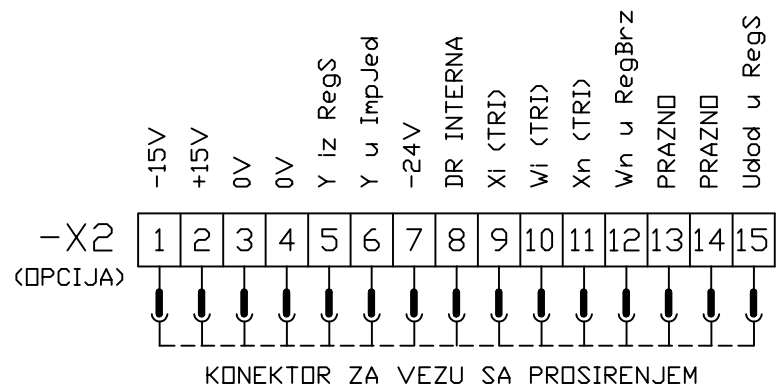
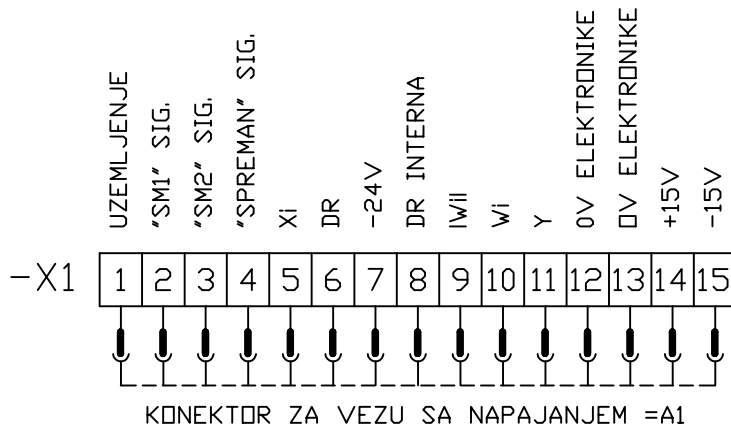
FUNKCIJE POTENCIOMETARA

- R1 KRAJNI UGAO PALJENJA FAZE R-T
- R2 KRAJNI UGAO PALJENJA FAZE S-R
- R3 KRAJNI UGAO PALJENJA FAZE T-S
- R4 NORMIRANJE MERENE VREDNOSTI STRUJE
- R5 PRAG KONTROLE MREZNOG NAPONA

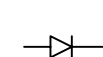
TROFAZNO NAPAJANJE SA IMPULSNOM JEDINICOM



PRIKLJUCNE STEZALJKE



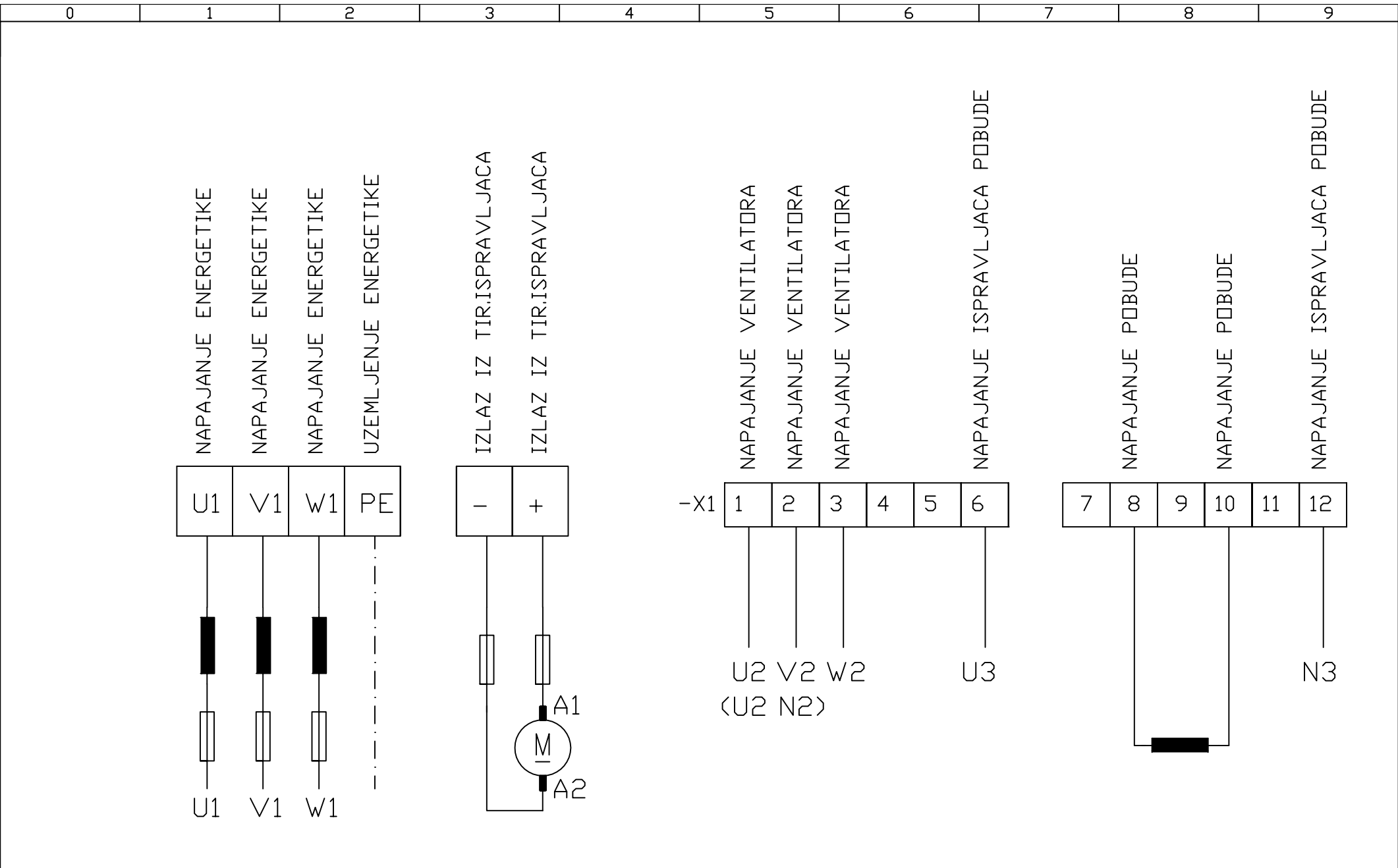
FUNKCIJE POTENCIOMETARA



FUNKCIJE "LED" DIODA

R1	STRUJNA GRANICA	R7	VREME RAMPE	H1	DEBLOKADA REGULATORA
R2	POJACANJE REGULATORA BRZINE	R8	GRANICA PREKIDNE STRUJE	H2	DEBLOKADA INTEGRATORA
R3	I*R KOMPENZACIJA	R9	P-CLAN U KONTINUALNOM REZIMU	H3	DEBLOKADA DODATNOG POJACAVACA1
R4	PODESAVANJE BROJA OBRTAJA	R10	I-CLAN U PREKIDNOM REZIMU	H4	DEBLOKADA DODATNOG POJACAVACA2
R5	POJACANJE MERACA BROJA OBRTAJA	R11	GRANICA NAPONA	H5	DOJAVA SPREMNOSTI ZA POGON
R6	DRIFT REGULATORA BRZINE	R12	POJACANJE MERACA OPTERECENJA	H6	SMER OKRETANJA 1
				H7	SMER OKRETANJA 2

ADAPTIVNI REGULATOR



NAPAJANJE VENTILATORA

1



U2

(U2 N2)

NAPAJANJE VENTILATORA

2



V2

NAPAJANJE VENTILATORA

3



W2

NAPAJANJE ISPRAVLJACA POBUDE

4



NAPAJANJE ISPRAVLJACA POBUDE

5



NAPAJANJE ISPRAVLJACA POBUDE

6



U3

NAPAJANJE POBUDE

7



NAPAJANJE POBUDE

8



NAPAJANJE POBUDE

9



NAPAJANJE ISPRAVLJACA POBUDE

10



NAPAJANJE ISPRAVLJACA POBUDE

11



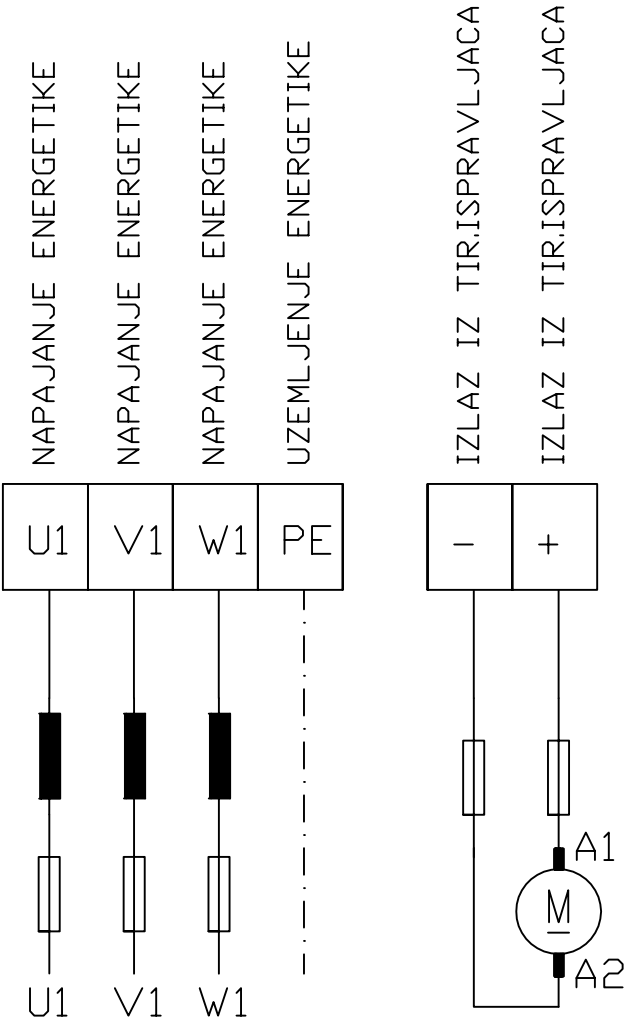
NAPAJANJE ISPRAVLJACA POBUDE

12

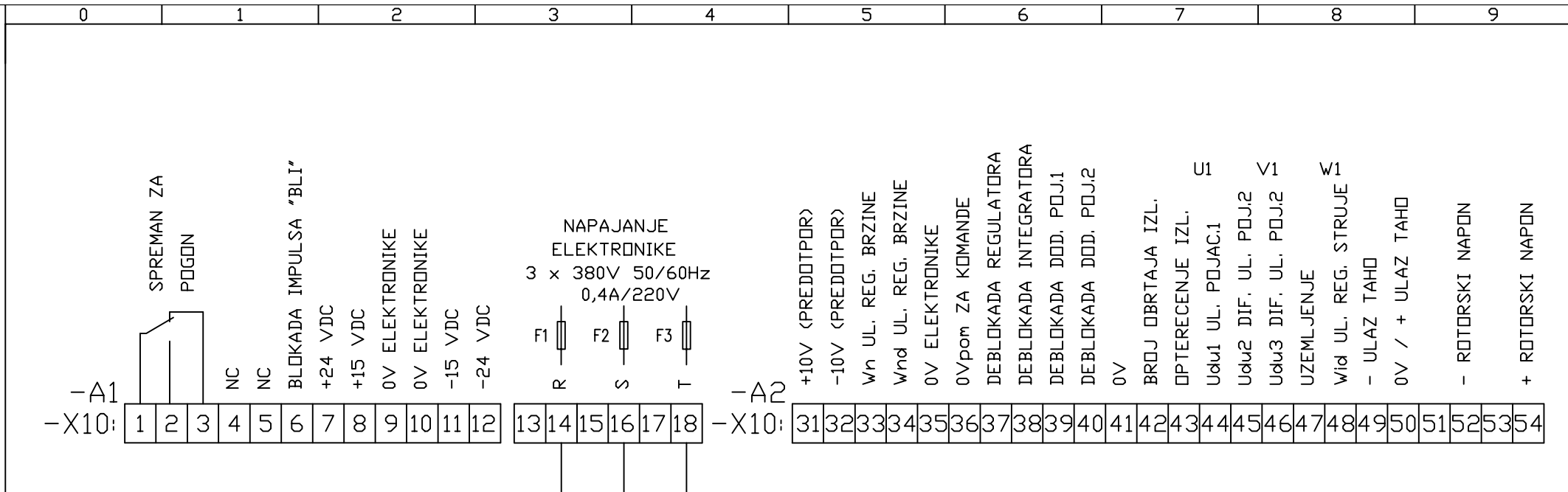


N3

ENERGETSKI PRIKLJUCAK ZA TRI-TROFAZNI+1K sa Pobudom



ENERGETSKI PRIKLJUCAK ZA TRI-TROFAZNI+1K bez Pobude



FUNKCIJE POTENCIOMETARA

-A1

- R1 KRAJNJI UGAO PALJENJA FAZE R-T
- R2 KRAJNJI UGAO PALJENJA FAZE S-R
- R3 KRAJNJI UGAO PALJENJA FAZE T-S
- R4 NORMIRANJE MERENE VREDNOSTI STRUJE
- R5 PRAG KONTROLE MREZNOG NAPONA

SPOLJNA OPTERETIVOST IZVORA

IZVOR	DODATNO
+24V	100mA
-24V	100mA
+15V	50mA
-15V	50mA



FUNKCIJE POTENCIOMETARA

-A2

- R1 STRUJNA GRANICA
- R2 POJACANJE REGULATORA BRZINE
- R3 I*R KOMPENZACIJA
- R4 PODESAVANJE BROJA OBRTAJA
- R5 POJACANJE MERACA BROJA OBRTAJA
- R6 DRIFT REGULATORA BRZINE

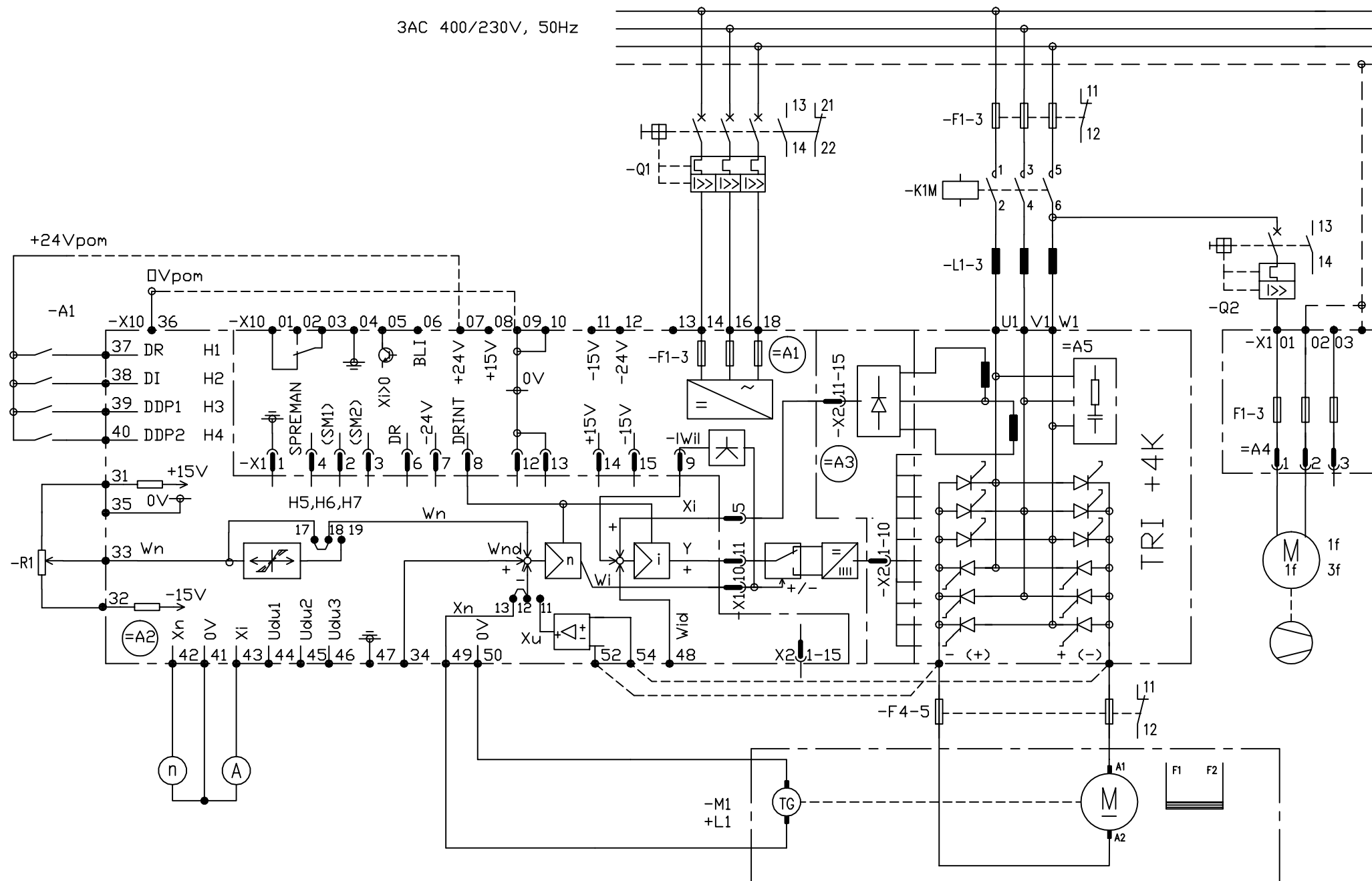
- R7 VREME RAMPE
- R8 GRANICA PREKIDNE STRUJE
- R9 P-CLAN U KONTINUALNOM REZIMU
- R10 I-CLAN U PREKIDNOM REZIMU
- R11 GRANICA NAPONA
- R12 POJACANJE MERACA OPTERECENJA



FUNKCIJE "LED" DIODA

- H1 DEBLOKADA REGULATORA
- H2 DEBLOKADA INTEGRATORA
- H3 DEBLOKADA DODATNOG POJACAVACA1
- H4 DEBLOKADA DODATNOG POJACAVACA2
- H5 DOJAVA SPREMNOSTI ZA POGON
- H6 SMER OKRETANJA 1
- H7 SMER OKRETANJA 2

3AC 400/230V, 50Hz



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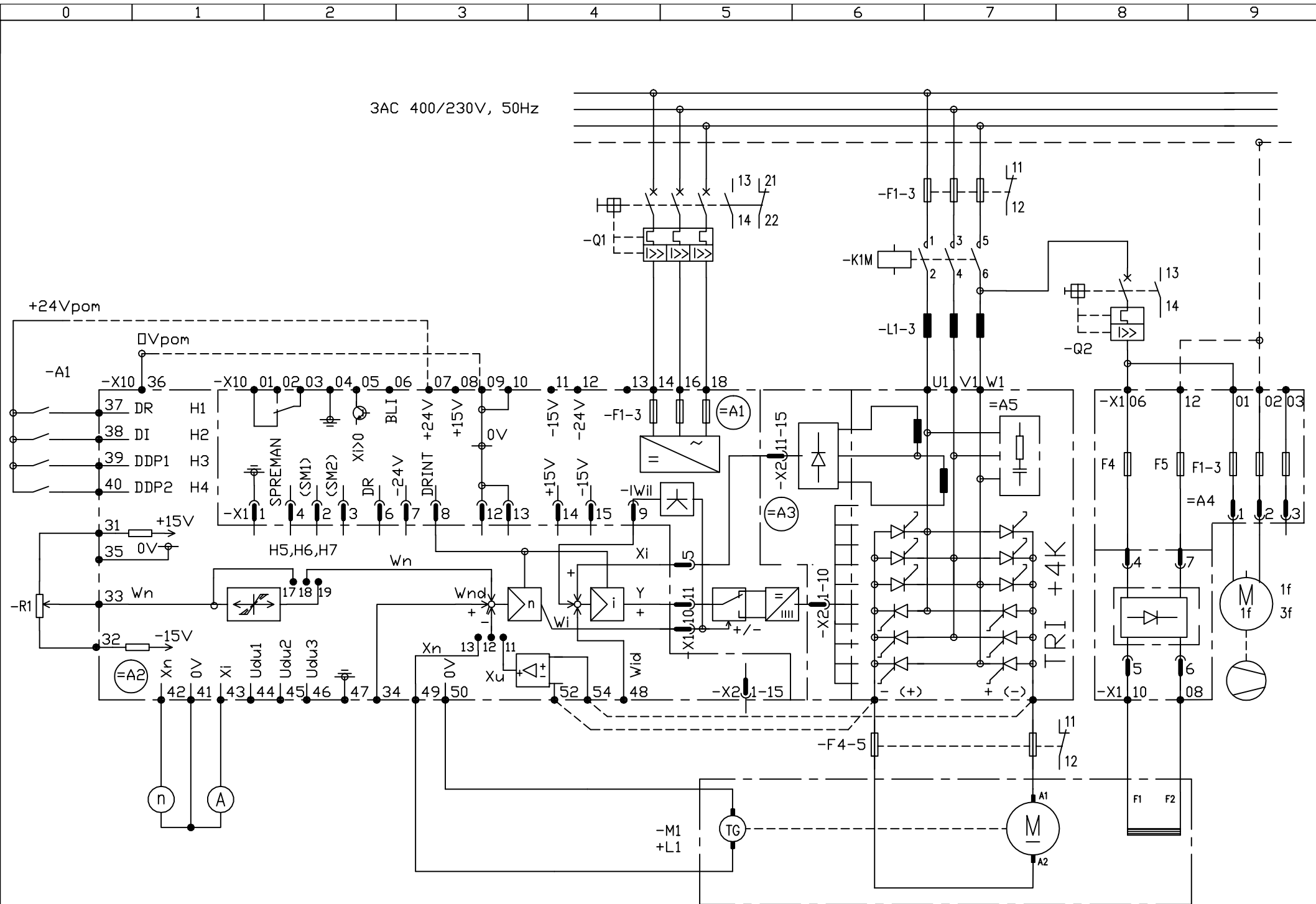
STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

+ TRI+4K

TRI-TROFAZNI+4K bez Pobude

List 1
 Listova



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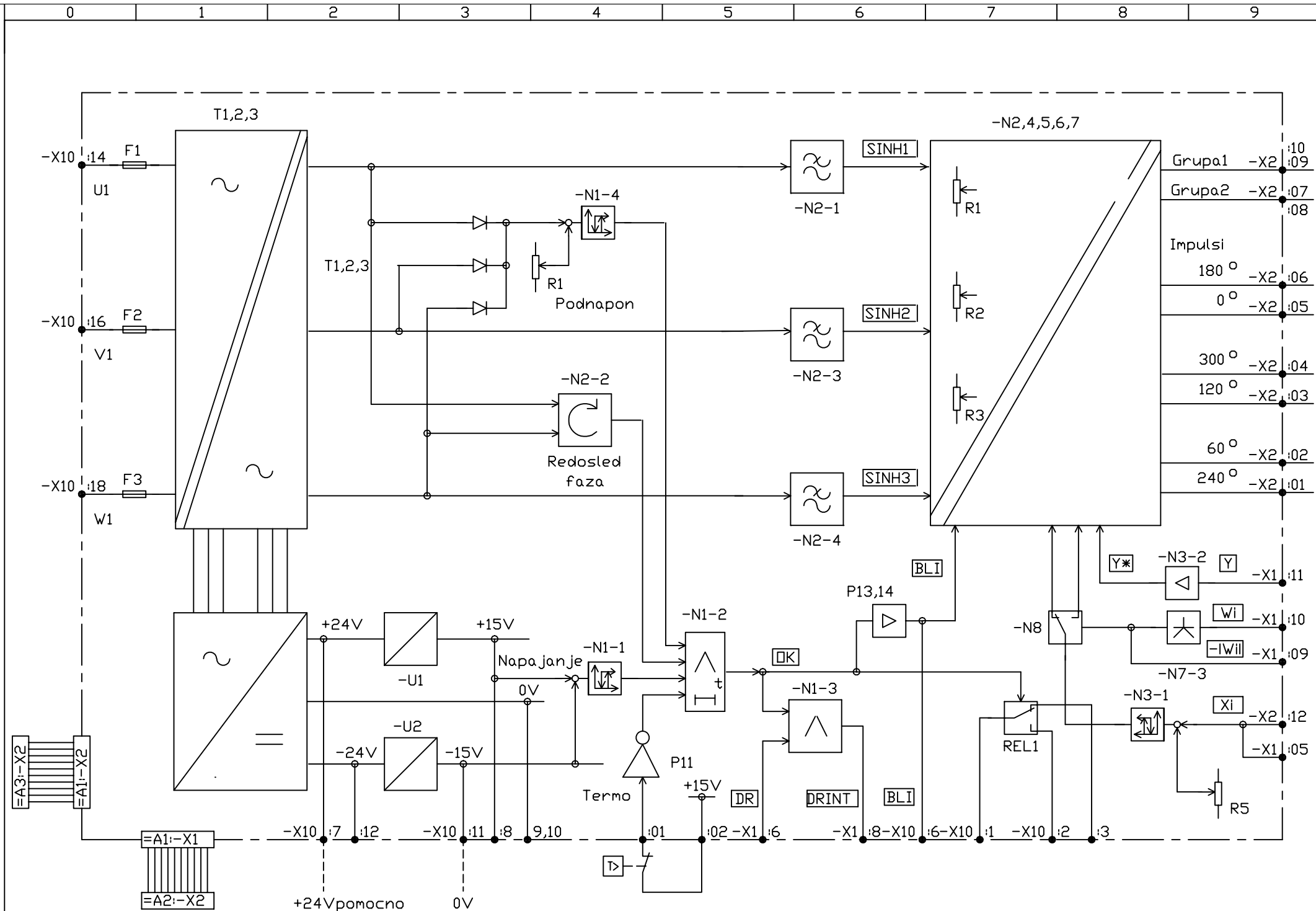
STRUJNA SEMA

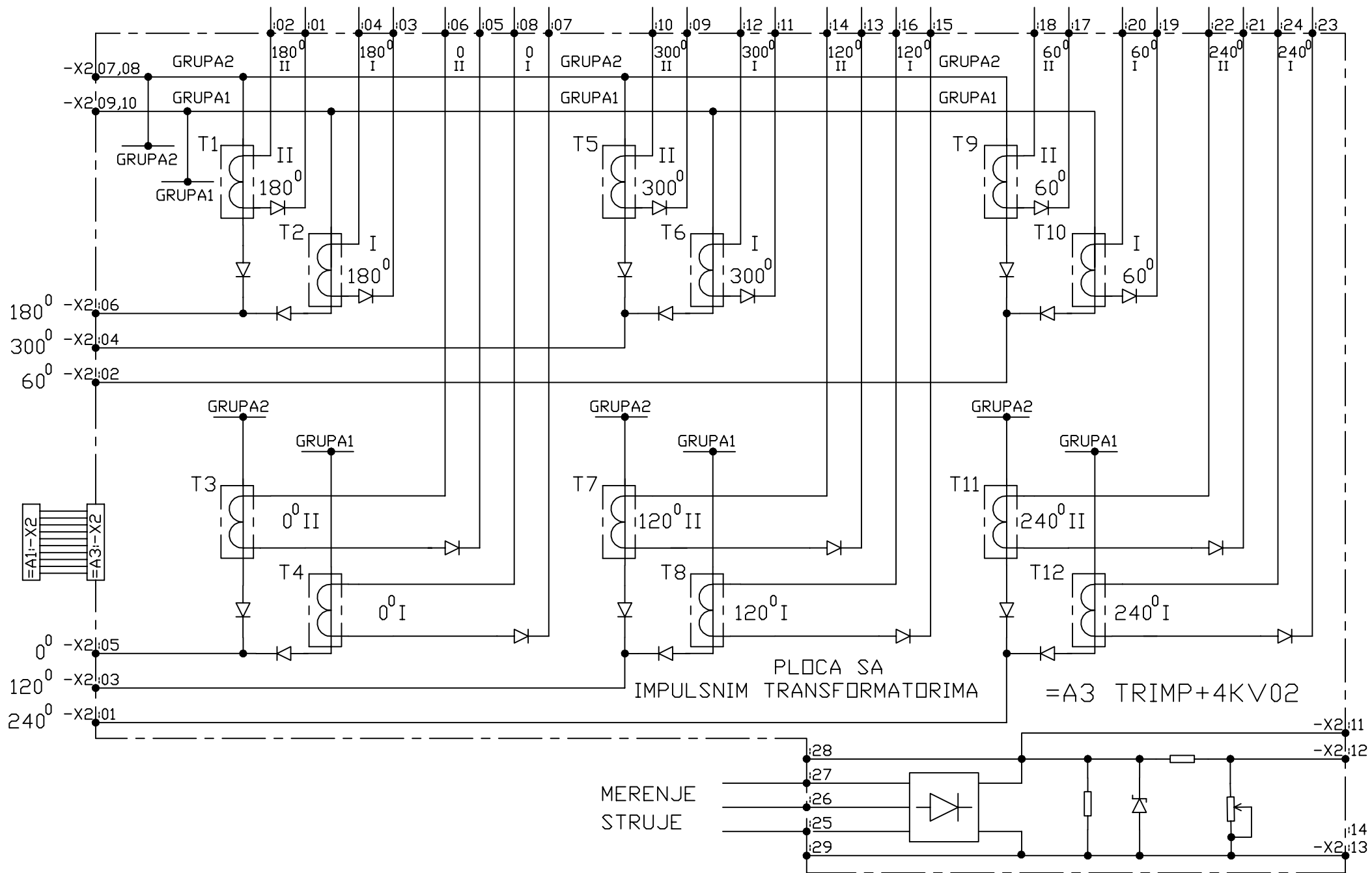
TIROSTORSKI REGULISANI ISPRAVLJAC

TRI - TROFAZNI + 4K

+ TRI + 4K

List 1
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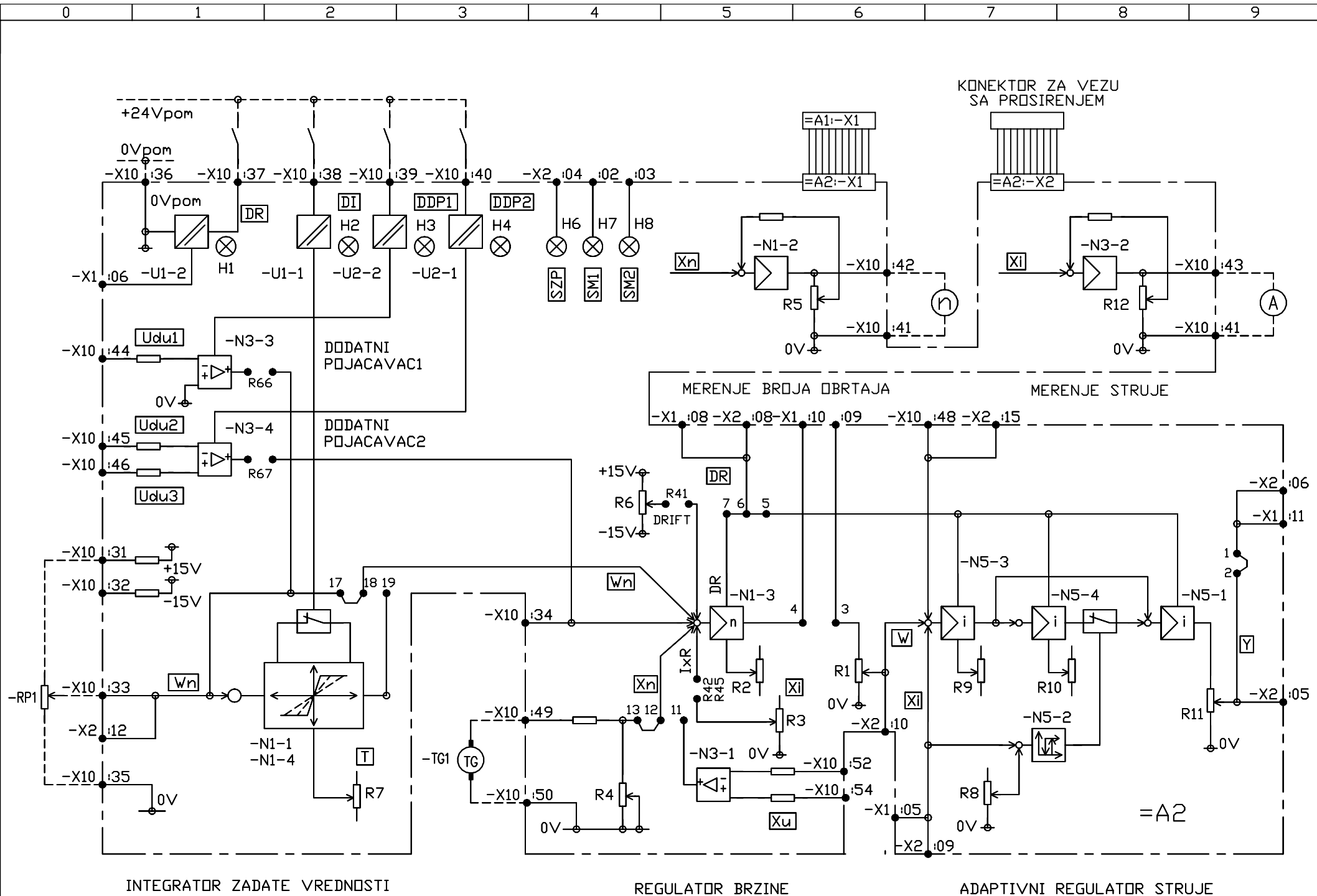
PREGLEDNA SEMA

=A3 TRIMP+4K

+TRI+4K

TRI-TROFAZNI+4K

List 3
 Listova



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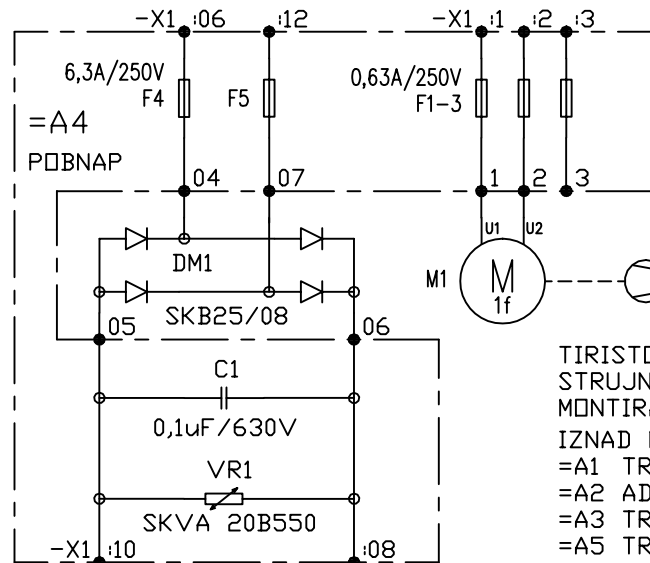
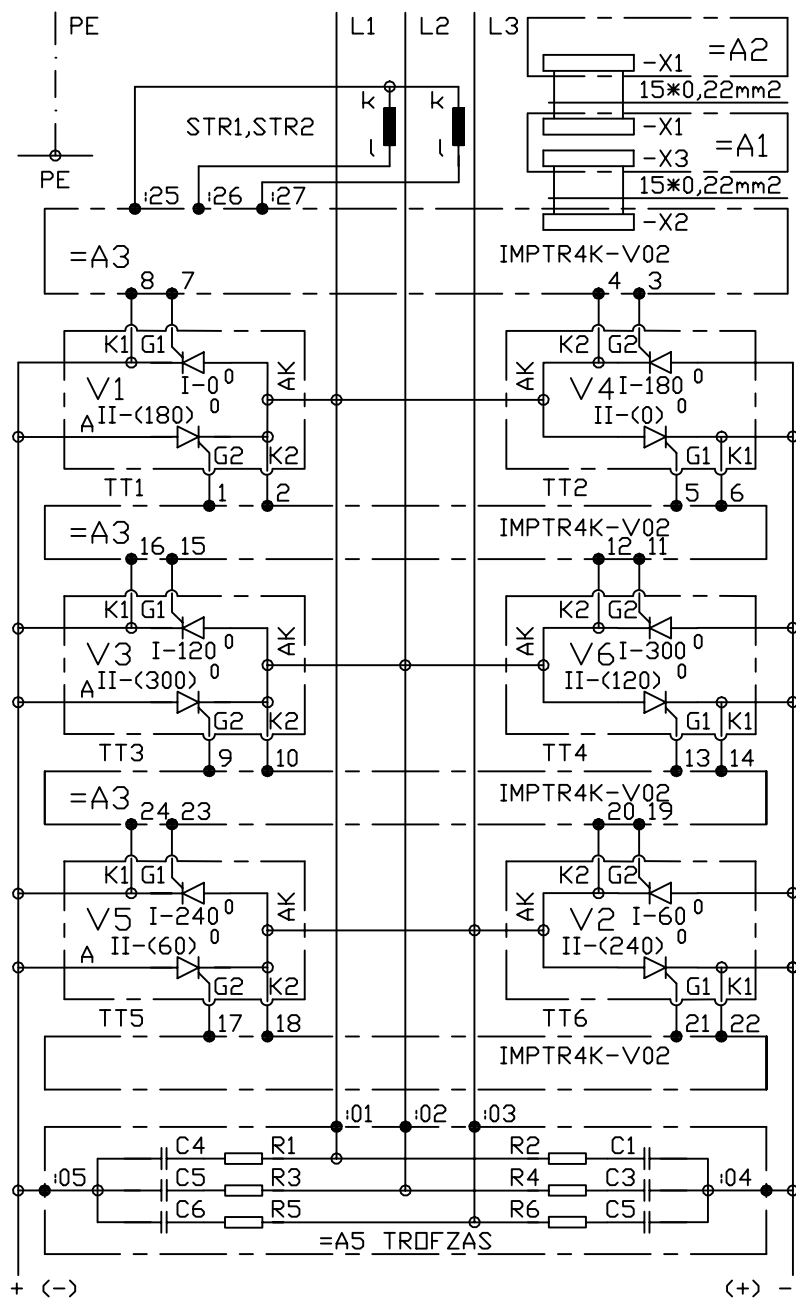
PREGLEDNA SEMA

=A2 ADAPTREG V002

+TRI+4K

TRI-TROFAZNI+4K

List 4
 Listova



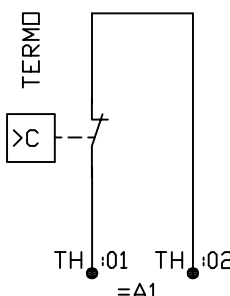
ULAZ	IZLAZ
3x400V 50/60Hz	0 - 420Vdc
3x500V 50/60Hz	0 - 520Vdc

MOTORVENTILATOR SAMO KOD
UREDJAJA SA PRINUDNOM
VENTILACIJOM

TIRISTORSKI BLOKOVI, ISPRAVLJAC ZA POBUDU,
STRUJNI TRAFDI I ENERGETSKE SINE
MONTIRANI SU NA ZAJEDNICKI HLADNJAK.
IZNAD NJIH MONTIRANI SU:
=A1 TROFNAP+4K (TROFAZNO NAPAJANJE)
=A2 ADAPTREG (ADAPTIVNI REGULATOR)
=A3 TROFIMP+4K (IMPULSNI TRANSFORMATORI)
=A5 TROFZAS (RC ZASTITA)

MOGUCA JE PRIGRADNJA DODATNIH MODULA NPR.
=A6 DODREG (DODATNI REGULATOR).
SEMA MODULA =A2 ADAPTREG, KOJI JE ISTI ZA
CITAVU FAMILIJU UREDJAJA, DATA JE NA
POSEBNOM CRTEZU.
TERMO KONTAKT SE UGRADJUJE U UREDJAJE
TIPISKE STRUJE > 125A.

TIP UREDJAJA	Idn [A]	TIP TT-MODULA	HLADJENJE	STRUJNI TRAFD
TRI 400/480 - 60		6 x TT105	PRIRODNO 0,37K/W	VAC50/50mA
TRI 400/480 - 90		6 x TT105		VAC100/100mA
TRI 400/480 - 125		6 x TT162		
TRI 400/480 - 210		6 x TT162	PRINUDNO 120cbm/h QLS 190-200 0,06K/W	VAC250/250mA
TRI 400/480 - 280		6 x TT250		MAK62/30 600/1A
TRI 400/480 - 400		6 x TT250		
TRI 400/480 - 600		6 x TT500	PRINUDNO 800cbm/h	MAK62/30 800/1A
TRI 400/480 - 850		6 x TT500		MAK74/40 800/1A
TRI 400/480 - 1500		12 x TZ850	PRINUDNO	MAK86/60 1500/1A



Datum izr. 5.11.2010
Projektant Istvan Nadj
Kontrolisao Istvan Nadj
Kontakt tel. 024/554-166

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Mob: 00-381-64-1272573

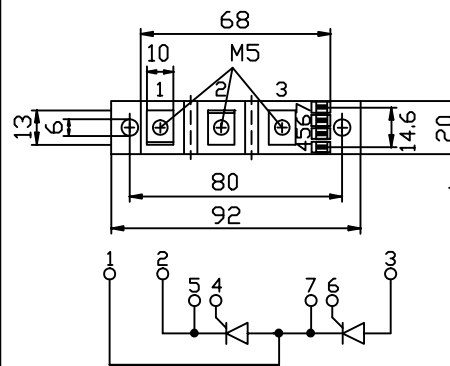
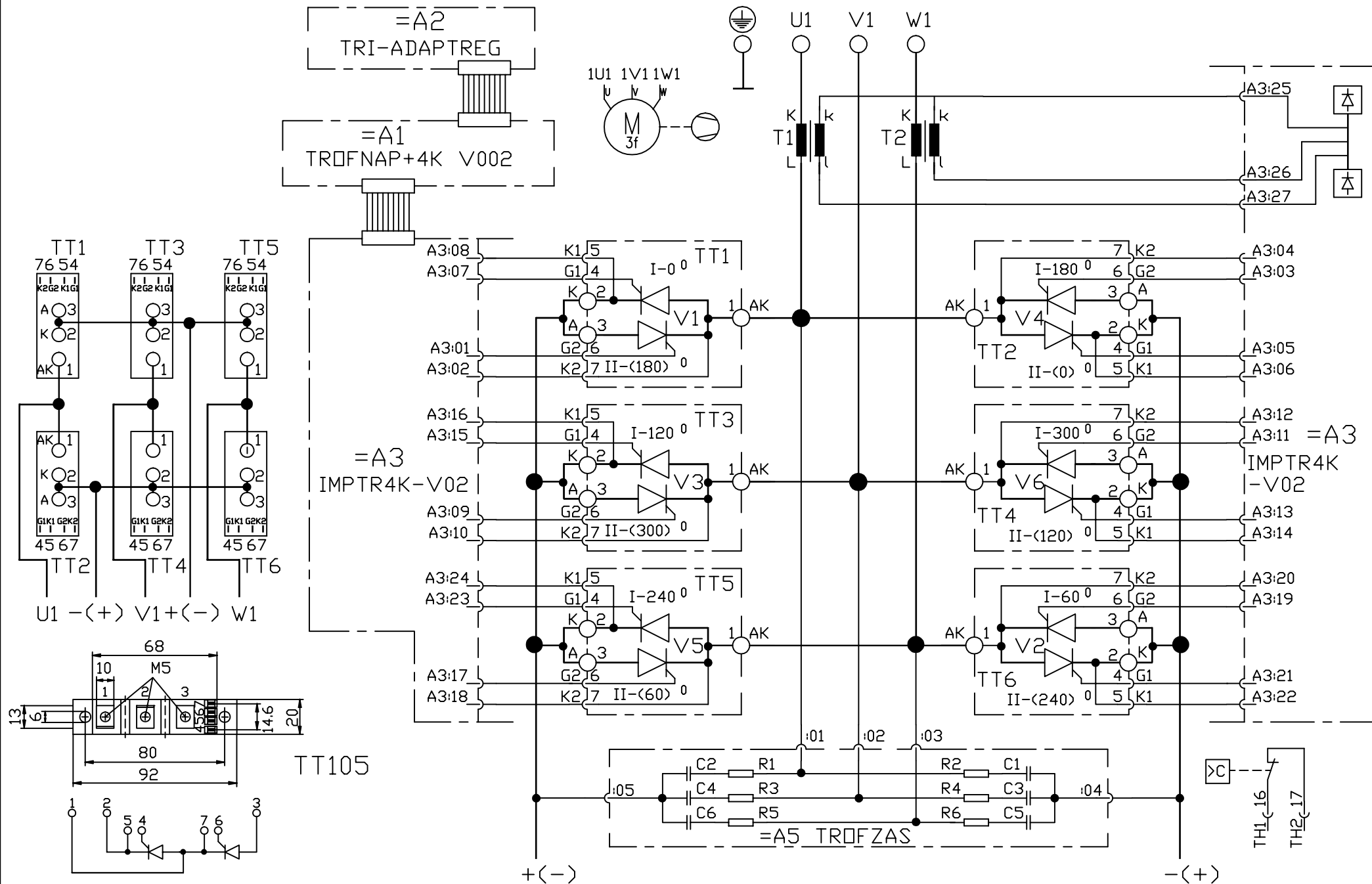
STRUJNA SEMA

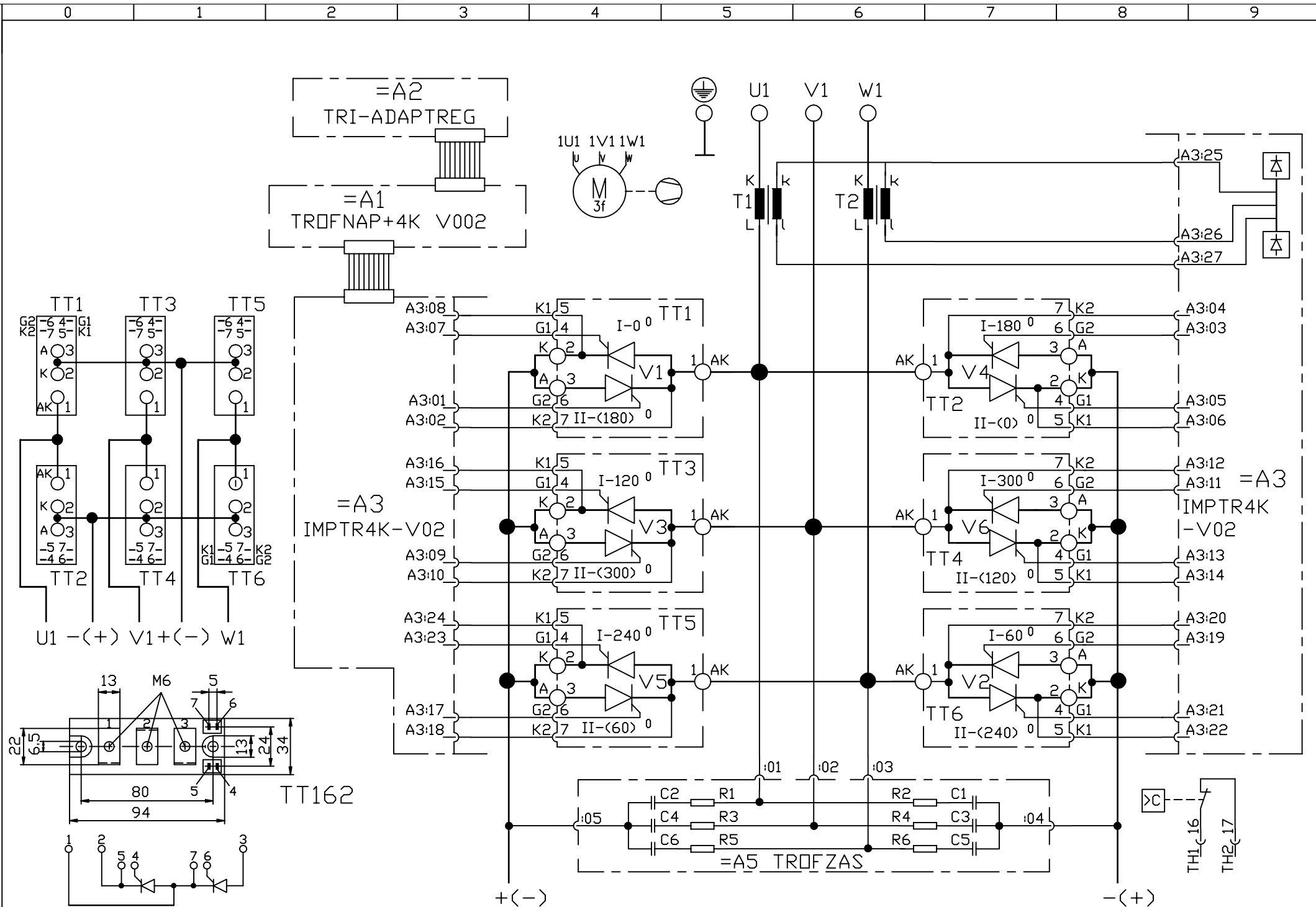
TRI400/480-60..1500A+4K

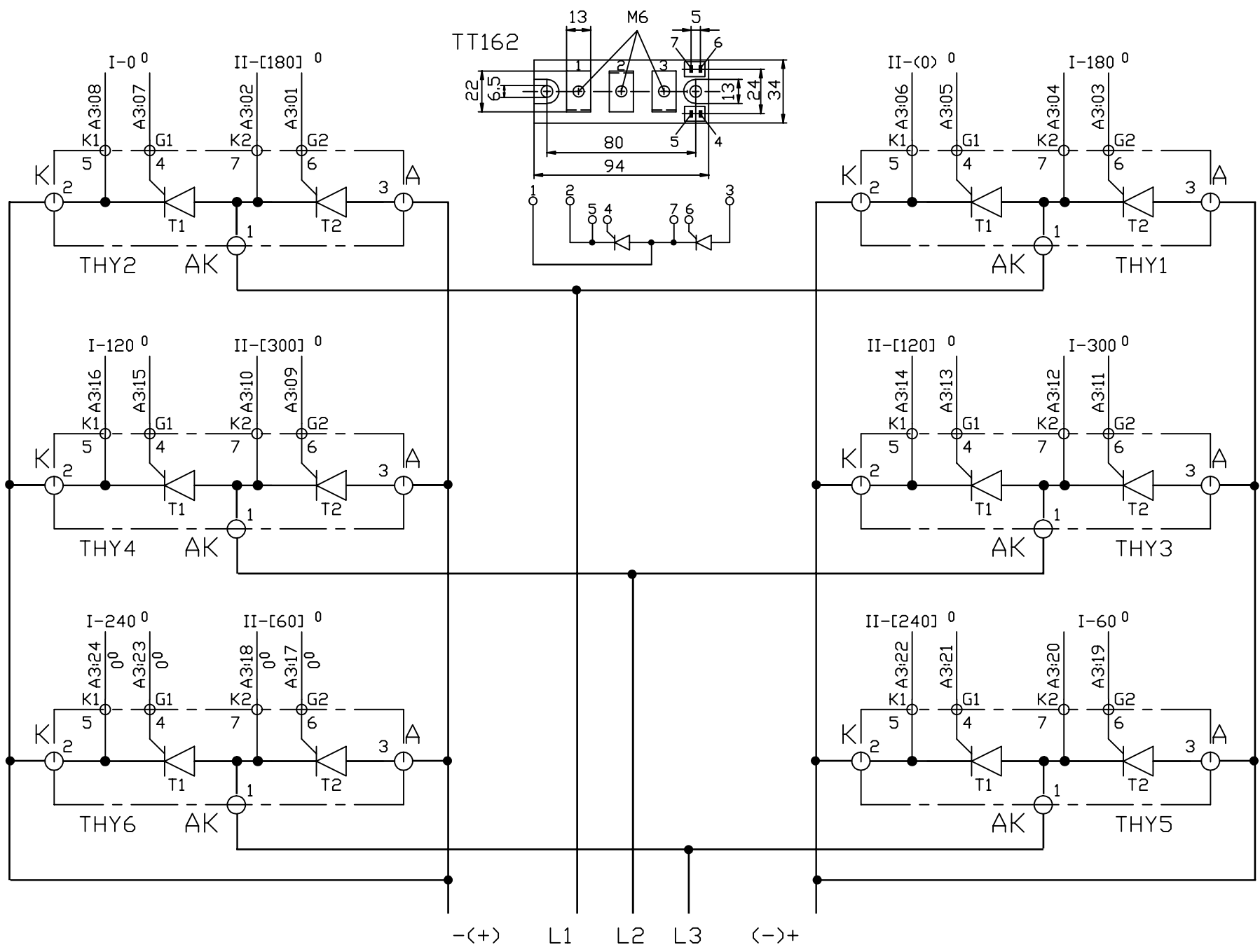
+TRI+4K

TRI-TROFAZNI+4K

List 5
Listova







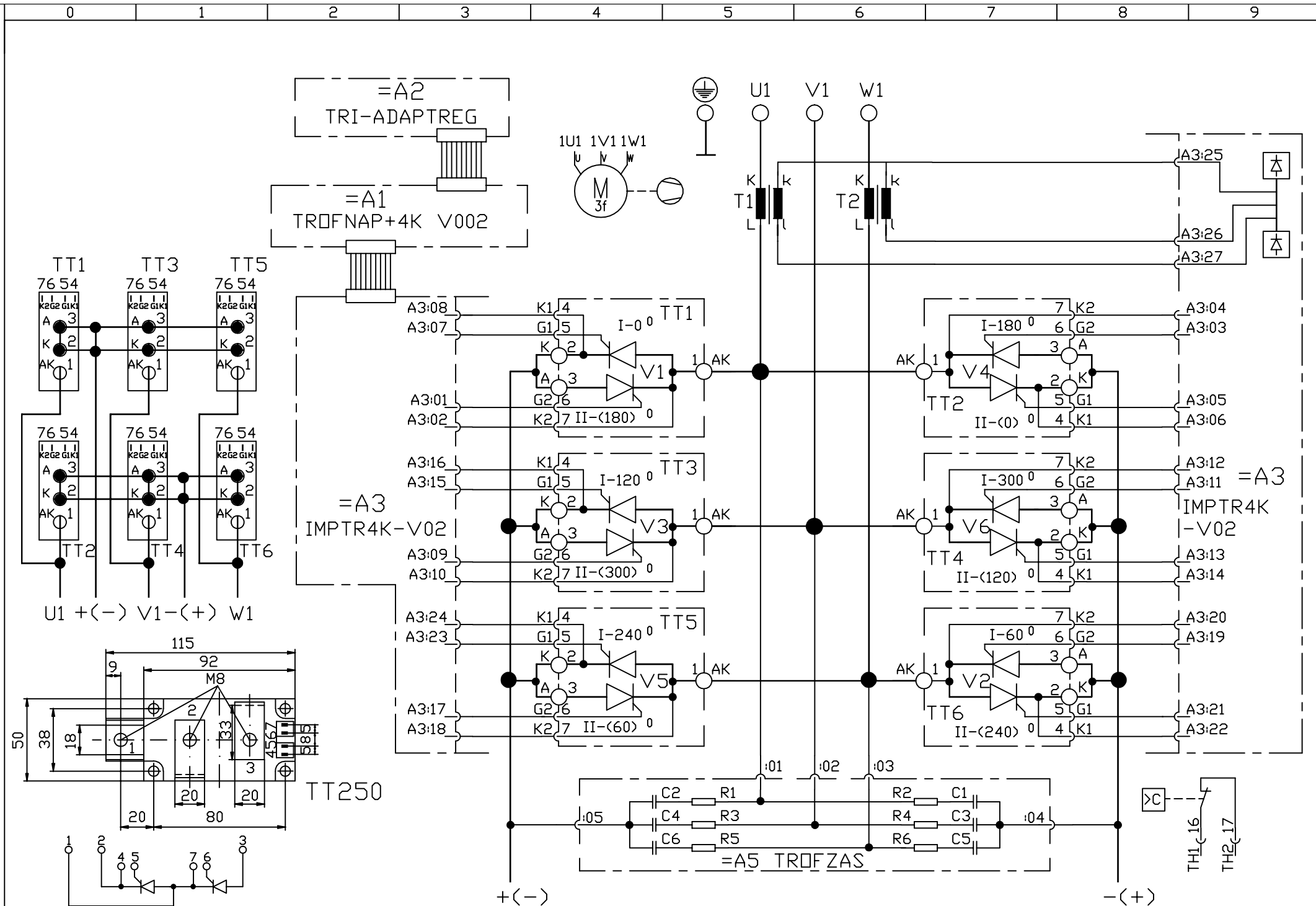
Datum izr. 5.11.2010
 Projektant Istvan Nadj
 Kontrolisao Istvan Nadj
 Kontak tel. 024/554-166

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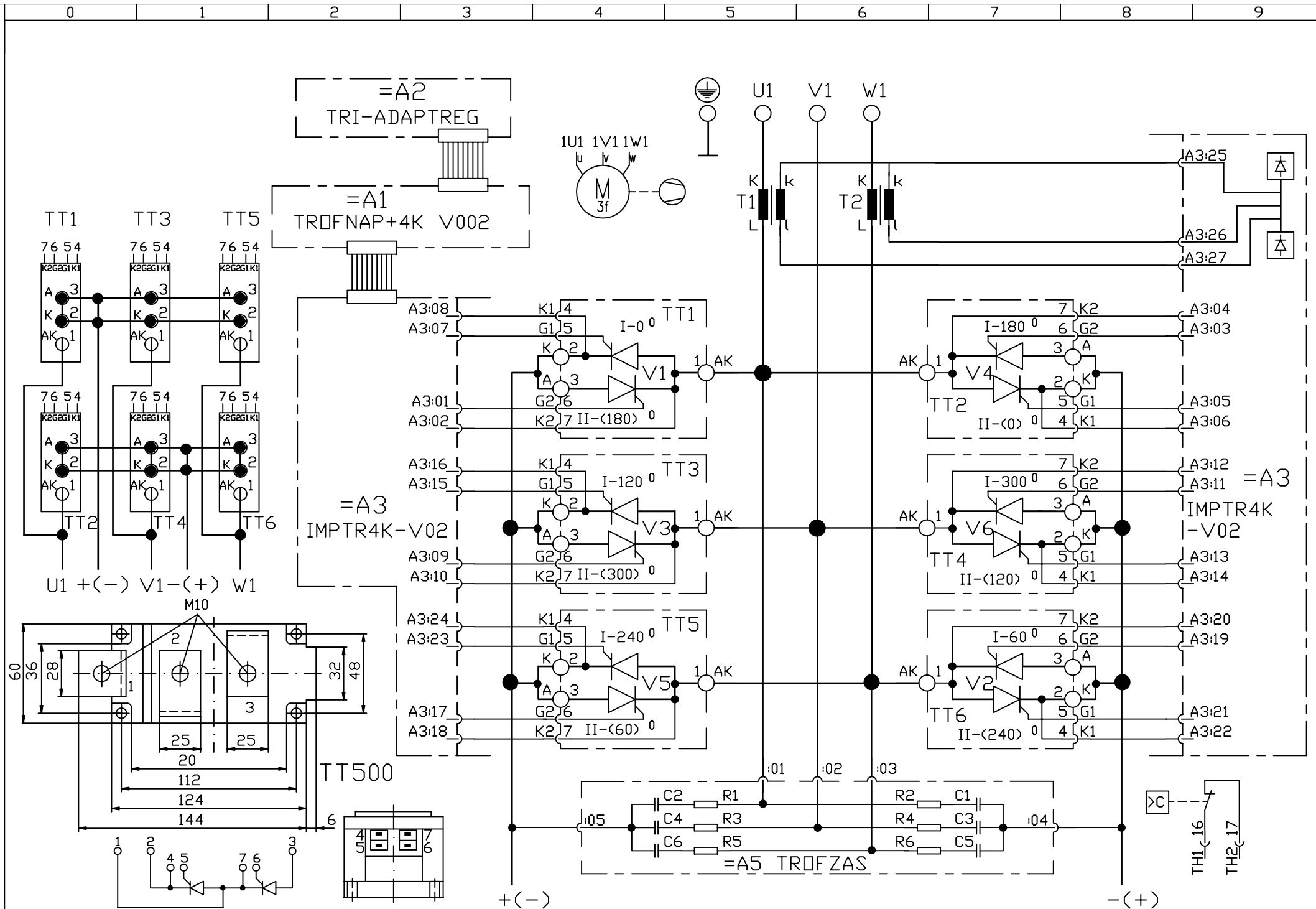
Mob: 00-381-64-1272573

STRUJNA SEMA

TT162 verzija: 2 TRI400/-125A,210A
 TRI-TROFAZNI+4K

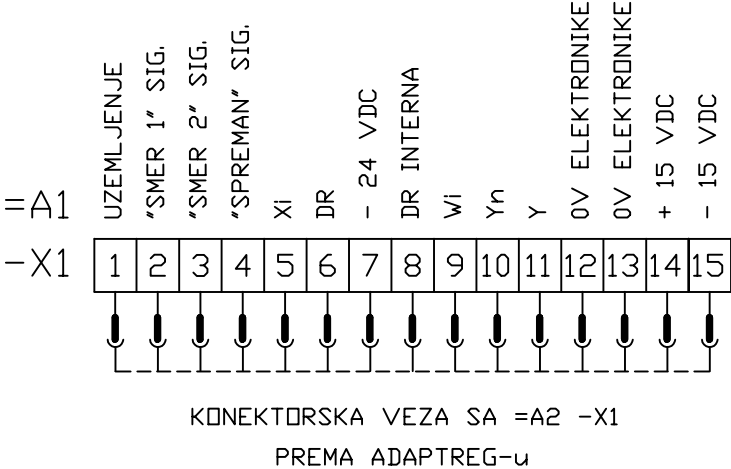
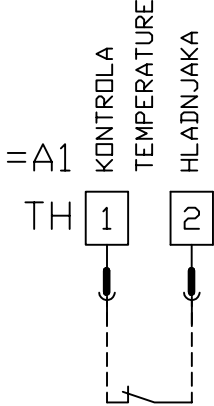
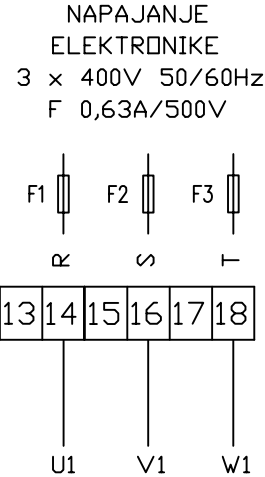
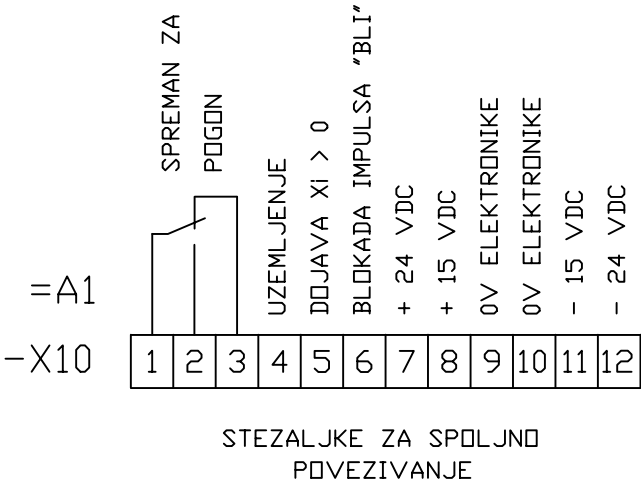


Datum izr.	5.11.2010	www.elektrodrive.com	Mob: 00-381-64-1272573	STRUJNA SEMA	TT250 TRI400/-280A,400A	+TRI+4K
Projektant	Istvan Nadj				TRI-TROFAZNI+4K	List 5
Kontrolisao	Istvan Nadj					Listova
Kontakt tel	024/554-166					



Datum izr.	5.11.2010	www.ELEKTRODRIVE.COM	Mob: 00-381-64-1272573	STRUJNA SEMA	TT500 TRI400/-600A,850A	+TRI+4K
Projektant	Istvan Nadj				TRI-TROFAZNI+4K	List 5
Kontrolisao	Istvan Nadj					Listova
Kontakt tel	024/554-166					

TROFAZNO NAPAJANJE+4K

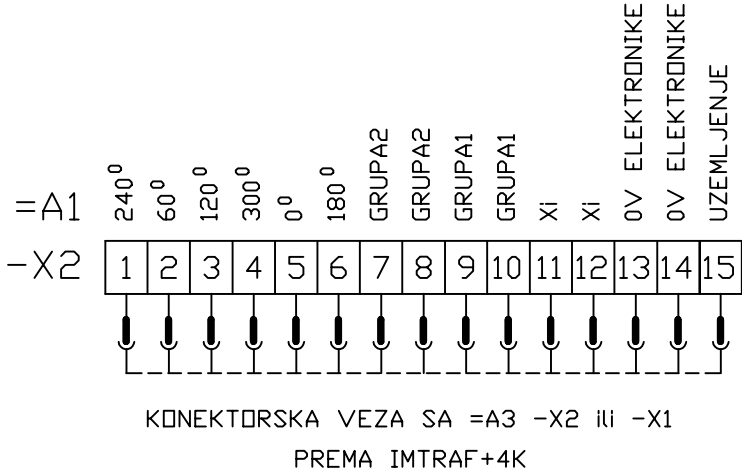


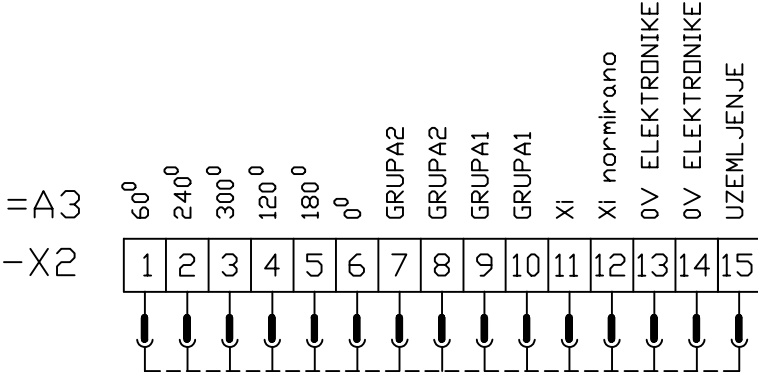
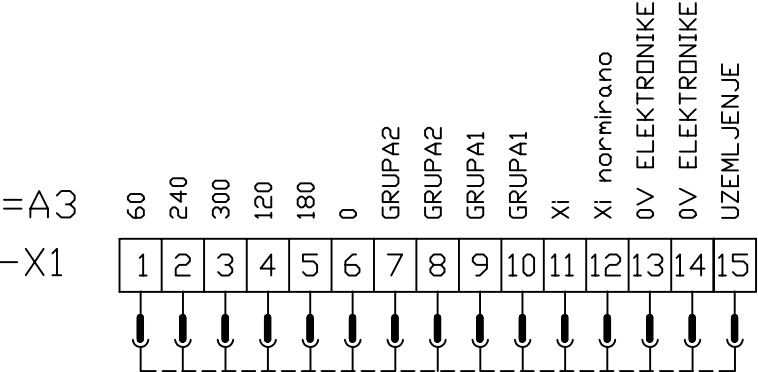
SPOLJNA OPTERETIVOST
NAPONSKIH IZVORA

IZVOR	DODATNO
+24V	150mA
-24V	150mA
+15V	100mA
-15V	100mA

 FUNKCIJE POTENCIOMETARA

- A1-R1 PRAG KONT. MREZNOG NAPONA
- A1-R2 KRAJNJI UGAO PALJENJA R-T
- A1-R3 KRAJNJI UGAO PALJENJA S-R
- A1-R4 KRAJNJI UGAO PALJENJA T-S
- A1-R5 PRAG KOMPARATORA $X_i > 0$
- A3-R1 NORMIRANJE VRED. STRUJE





KONEKTORSKA VEZA SA =A1 -X2

KORISTI SE SAMO JEDAN KONEKTOR

ELEKTRONSKA KARTICA SA IMPULSNIM TRANSFORMATORIMA

-X10

31	+10V (PREDOTPOR)
32	-10V (PREDOTPOR)
33	Wn UL, REG. BRZINE
34	Wnd UL, REG. BRZINE
35	0V ELEKTRONIKE
36	0Vpom ZA KOMANDE
37	DEBLOKADA REGULATORA
38	DEBLOKADA INTEGRATORA
39	DEBLOKADA DOD. POJ.1
40	DEBLOKADA DOD. POJ.2
41	0V
42	BROJ OBRTAJA IZL.
43	OPTERECENJE IZL.
44	Udu1 UL, POJAC.1
45	Udu2 DIF. UL. POJ.2
46	Udu3 DIF. UL. POJ.2
47	UZEMLJENJE
48	Wid UL, REG. STRUJE
49	- ULAZ TAHO
50	0V / + ULAZ TAHO
51	
52	- ROTORSKI NAPON
53	
54	+ ROTORSKI NAPON

PRIKLJUCNE STEZALJKE

$$-x_1$$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
UZEMLJENJE	"SM1" SIG.	"SM2" SIG.	"SPREMAN" SIG.	Xi	DR	-24V	DR INTERNA	Iw/iI	Wi	Y	0V ELEKTRONIKE	0V ELEKTRONIKE	+15V	-15V

KONEKTOR ZA VEZU SA NAPAJANJEM =A1

FUNKCIJE POTENCIOMETARA

- R1 STRUJNA GRANICA
R2 POJACANJE REGULATORA BRZINE
R3 I*R KOMPENZACIJA
R4 PODESAVANJE BROJA OBRTAJA
R5 POJACANJE MERACA BROJA OBRTAJA
R6 DRIFT REGULATORA BRZINE

- R7 VREME RAMPE
R8 GRANICA PREKIDNE STRUJE
R9 P-CLAN U KONTINUALNOM REZIMU
R10 I-CLAN U PREKIDNOM REZIMU
R11 GRANICA NAPONA
R12 POJACANJE MERACA OPTEREĆENJA

-X2
(□PCIJA)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
-15V	+15V	0V	0V	Y iz RegS	Y u ImpJed	-24V	DR INTERNA	Xi <TRI>	Wi <TRI>	Xn <TRI>	Wn u RegBrz	PRAZND	PRAZND	Udod u RegS

KONEKTOR ZA VEZU SA PROSIRENJEM

—|>—FUNK

—FUNKCIJE "LED" DIODA

- H1 DEBLOKADA REGULATORA
H2 DEBLOKADA INTEGRATORA
H3 DEBLOKADA DODATNOG POJACAVACA1
H4 DEBLOKADA DODATNOG POJACAVACA2
H5 DOJAVA SPREMNOSTI ZA POGON
H6 SMER OKRETANJA 1
H7 SMER OKRETANJA 2

ADAPTIVNI REGULATOR

Datum izr.	5.11.2010
Projektant	Istvan Nad
Kontrolisao	Istvan Nadj
Kontakt tel	024/554-166

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Mob: 00-381-64-1272573

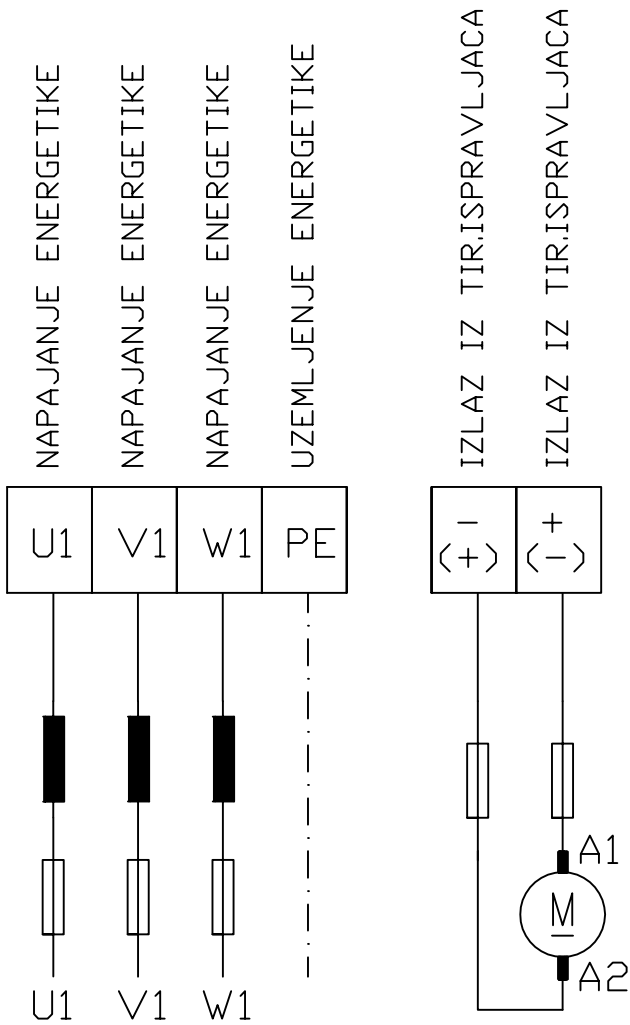
VEZE ZA PRIKLJUCENJE

= A2 TRI-ADAPTREG

+ TRI+4K

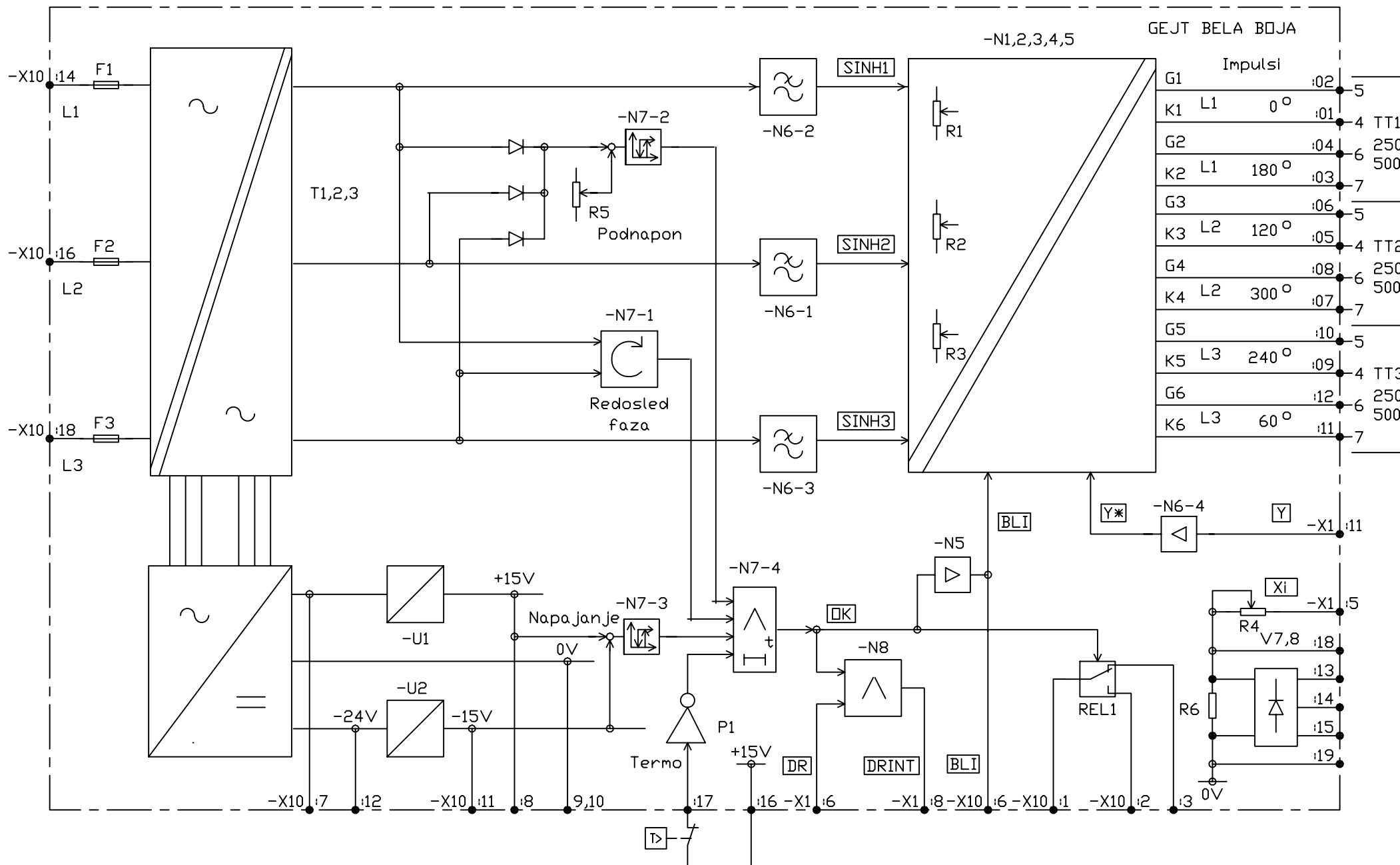
ADAPTIVNI REGULATOR

List	8
	Listov



ENERGETSKI PRIKLJUCAK ZA TRI-TROFAZNI+4K

BLOK SEMA



Datum izr. 5.11.2010
 Projektant Istvan Nad
 Kontrolisao Istvan Nad
 Kontak tel 024/554-166

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STRUJNA SEMA

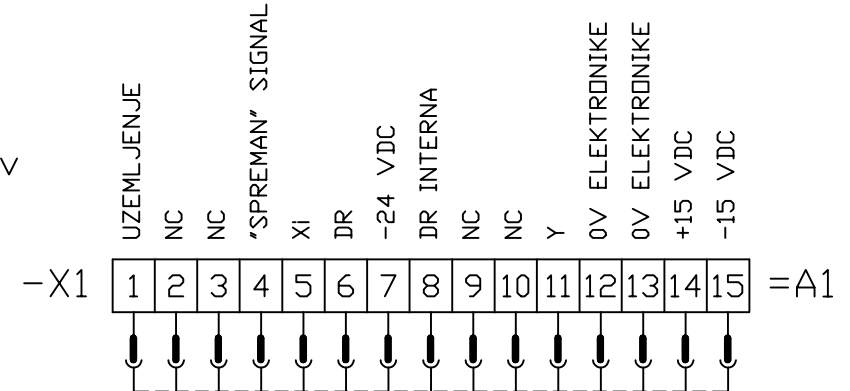
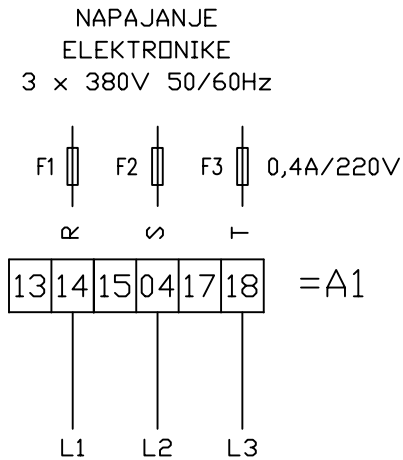
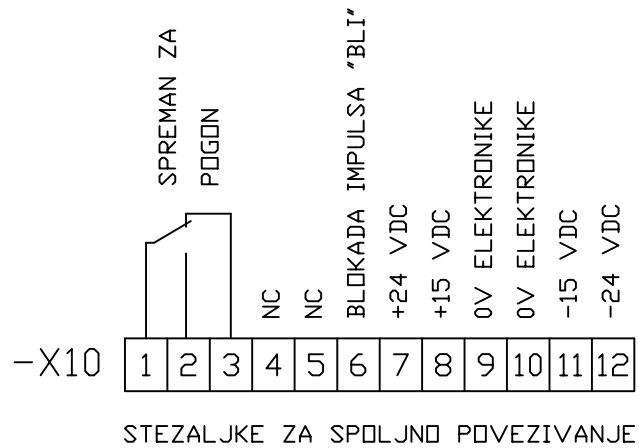
TIROSTORSKI REGULISANI ISPRAVLJAC

TROFNAP - V004

=A1
 +TRI
 List 1
 8 Listova

STEZALJKE ZA SPOLJNO POVEZIVANJE

KONEKTORSKA VEZA SA =A2



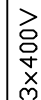
SPOLJNA OPTERETIVOST IZVORA

IZVOR	DODATNO
+24V	100mA
-24V	100mA
+15V	50mA
-15V	50mA



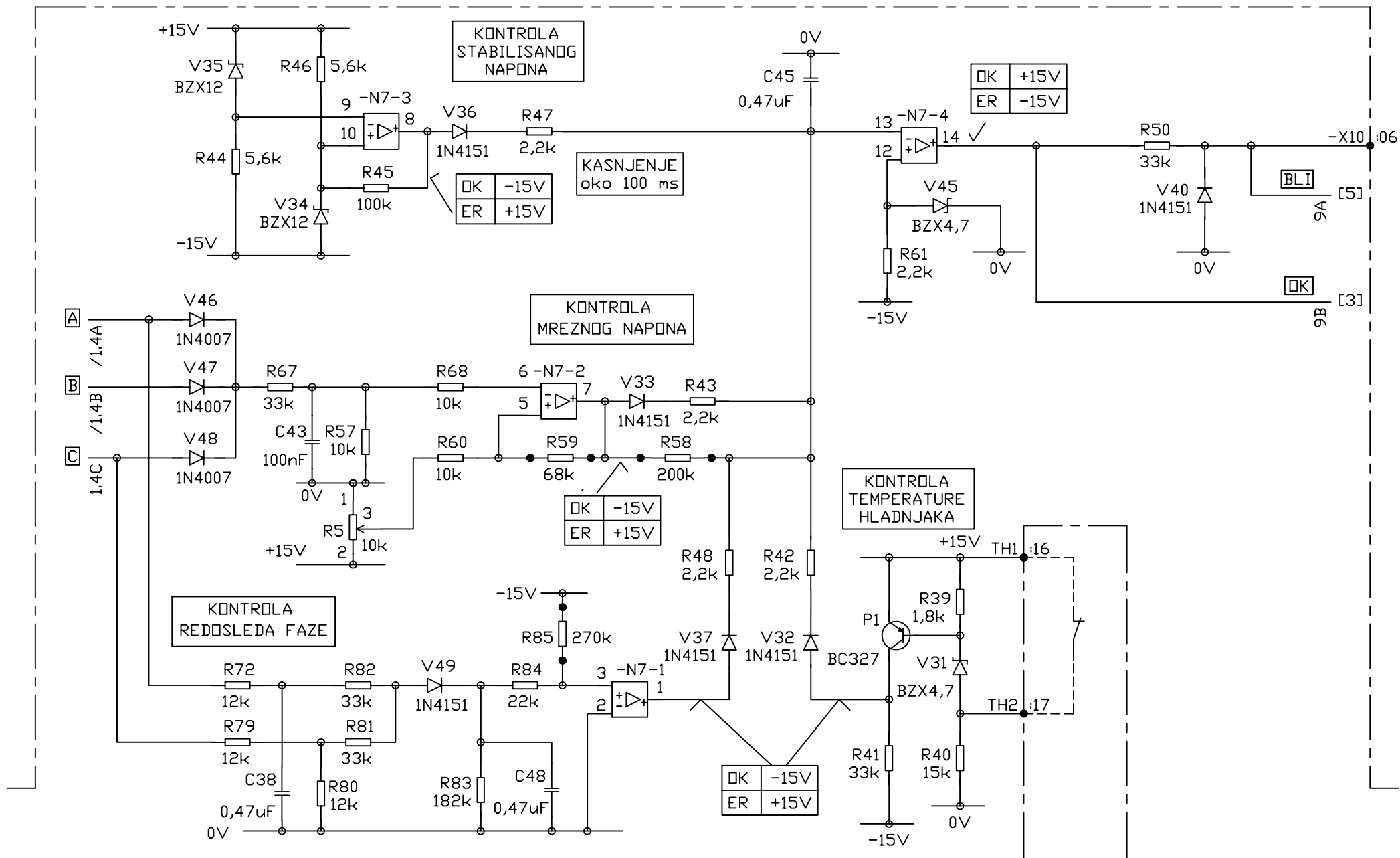
FUNKCIJE POTENCIOMETARA

- R1 KRAJNJI UGAO PALJENJA FAZE R-T
- R2 KRAJNJI UGAO PALJENJA FAZE S-R
- R3 KRAJNJI UGAO PALJENJA FAZE T-S
- R4 NORMIRANJE MERENE VREDNOSTI STRUJE
- R5 PRAG KONTROLE MREZNOG NAPONA



List	3
8 Listova	

KONTROLA SPREMNOSTI ZA POGON



Datum izr. 5.11.2010
 Projektant Istvan Nad
 Kontrolisao Istvan Nad
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STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

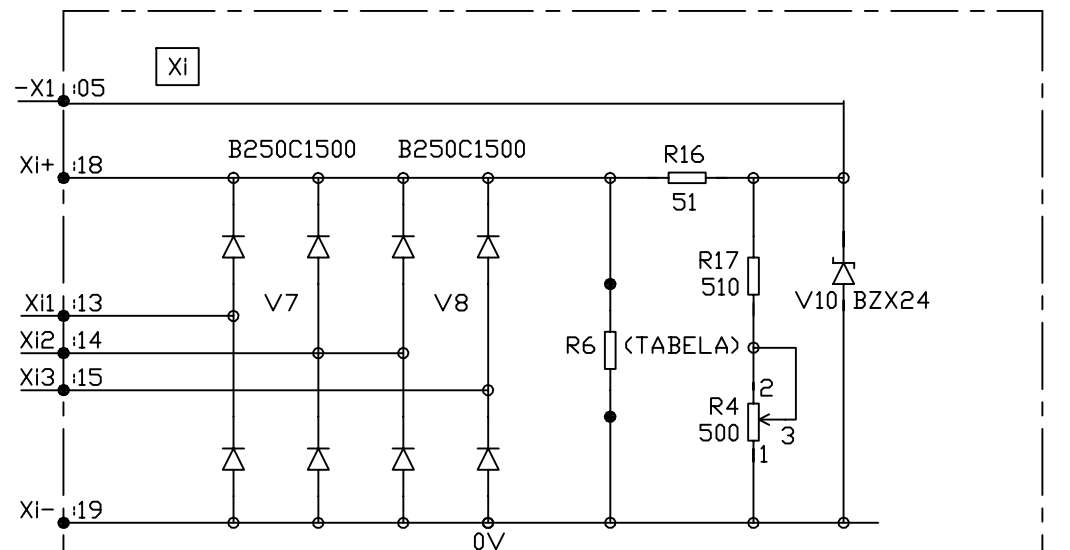
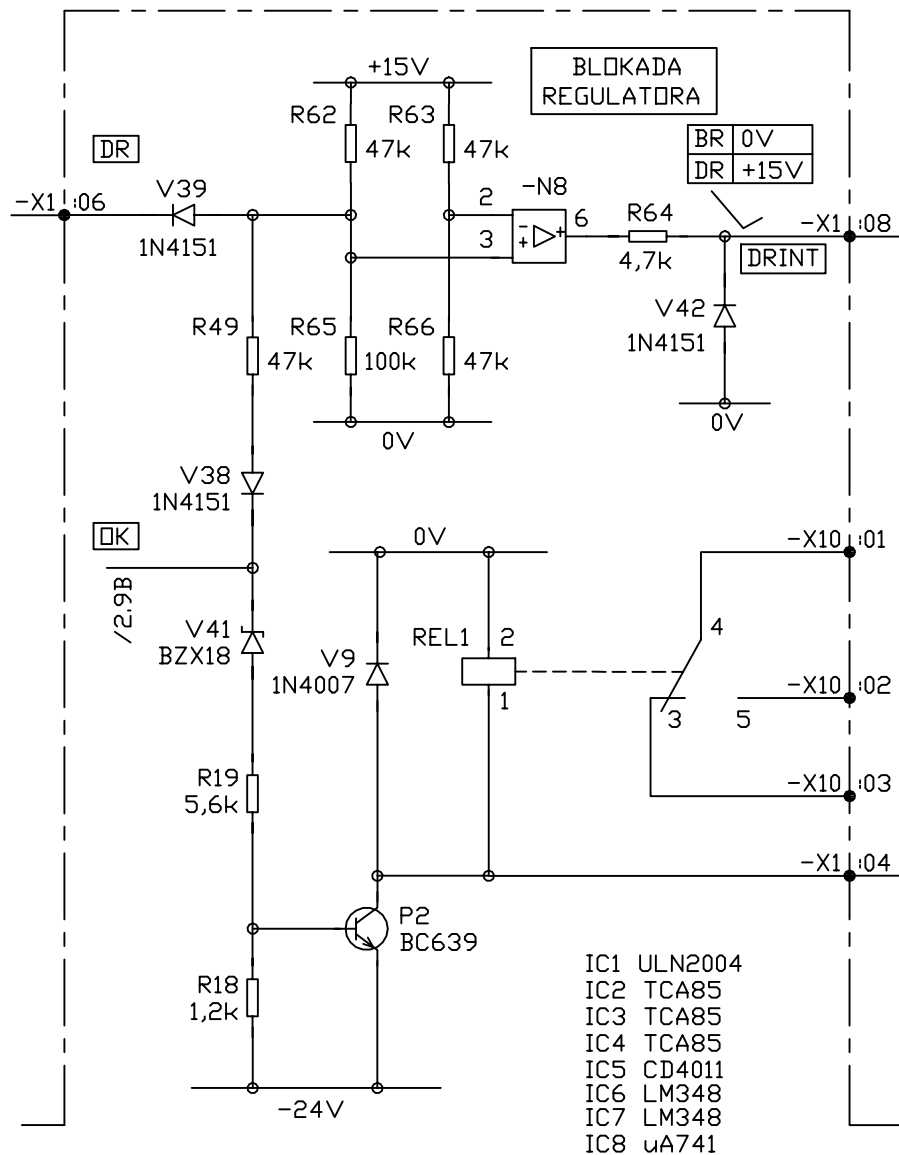
TROFNAP – V004

=A1
 +TRI

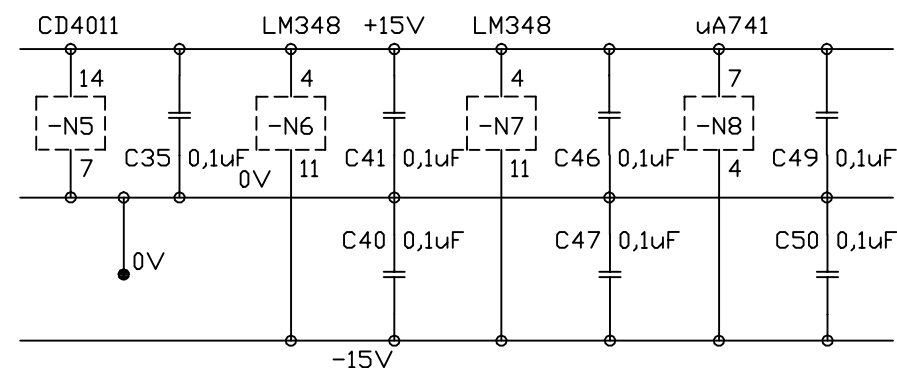
/2

List 4
 8 Listova

DOJAVA SPREMNOSTI ZA POGON

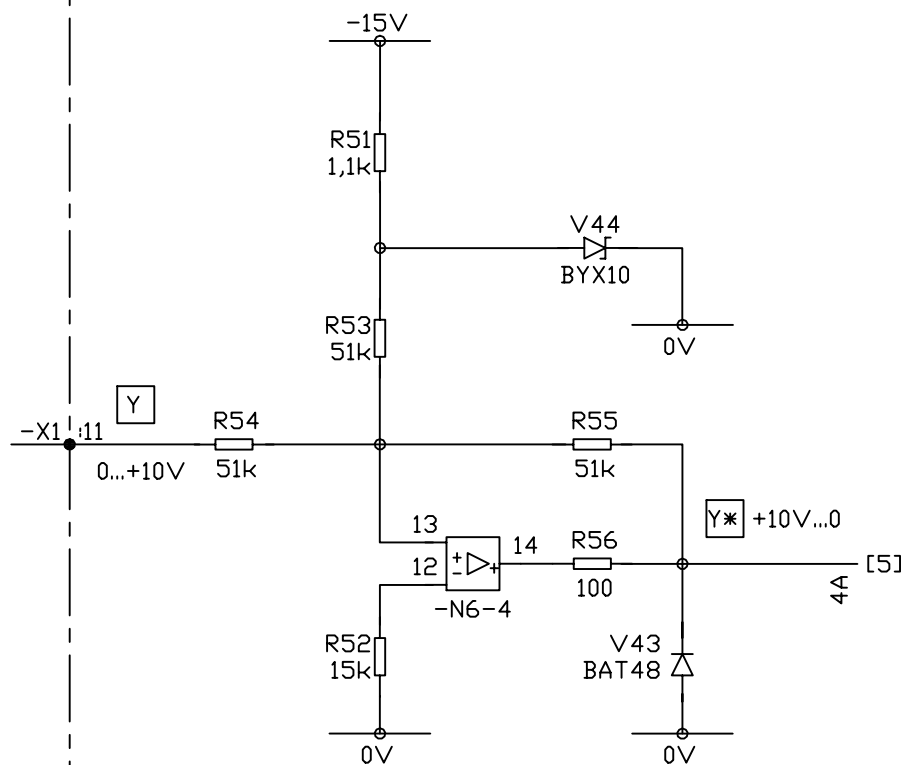
MERENJE STVARNE VREDNOSTI STRUJE
NAPAJANJE INTEGRISANIH KOLA

NORMIRANJE MERENJA STRUJE R6 (DMA)					
	50A	100A	200A	250A	750A
	50mA	100mA	100mA	250mA	1A
TRI.	$\frac{10000}{I_{nom}[A]}$	$\frac{10000}{I_{nom}[A]}$	$\frac{20000}{I_{nom}[A]}$	$\frac{10000}{I_{nom}[A]}$	$\frac{7500}{I_{nom}[A]}$

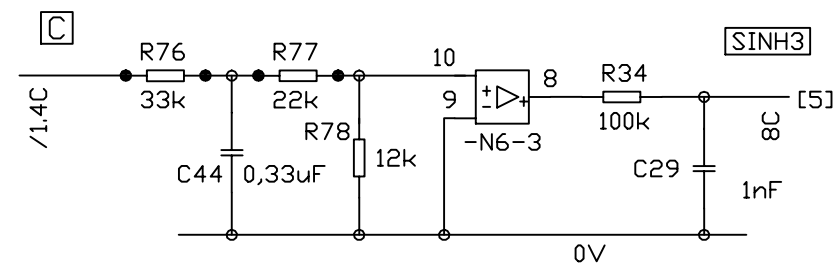
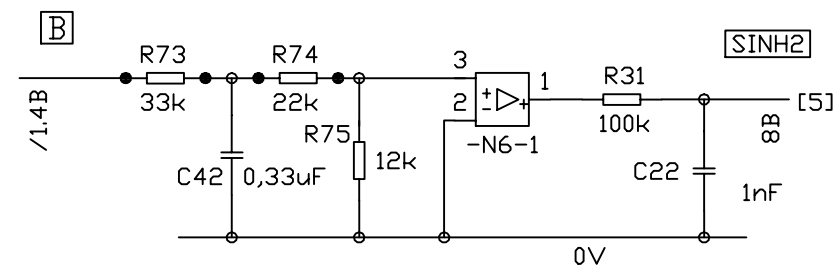
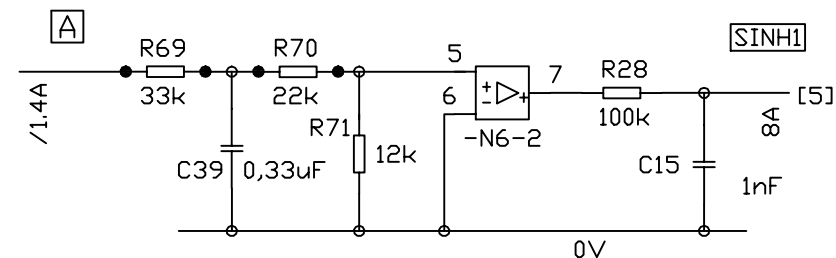


INVERTOR UGLA PALJENJA

FILTAR SINHRONIZACIONIH NAPONA



PODESIVAC NAPONA
TREBA IZBACITI POMERAC-FILTAR 60° (C39, C42 i C44)



Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
Kontakt tel 024/554-166

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Mob: 00-381-64-1272573

STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

TROFNAP - V004

=A1
+TRI

/4

List 6
8 Listova

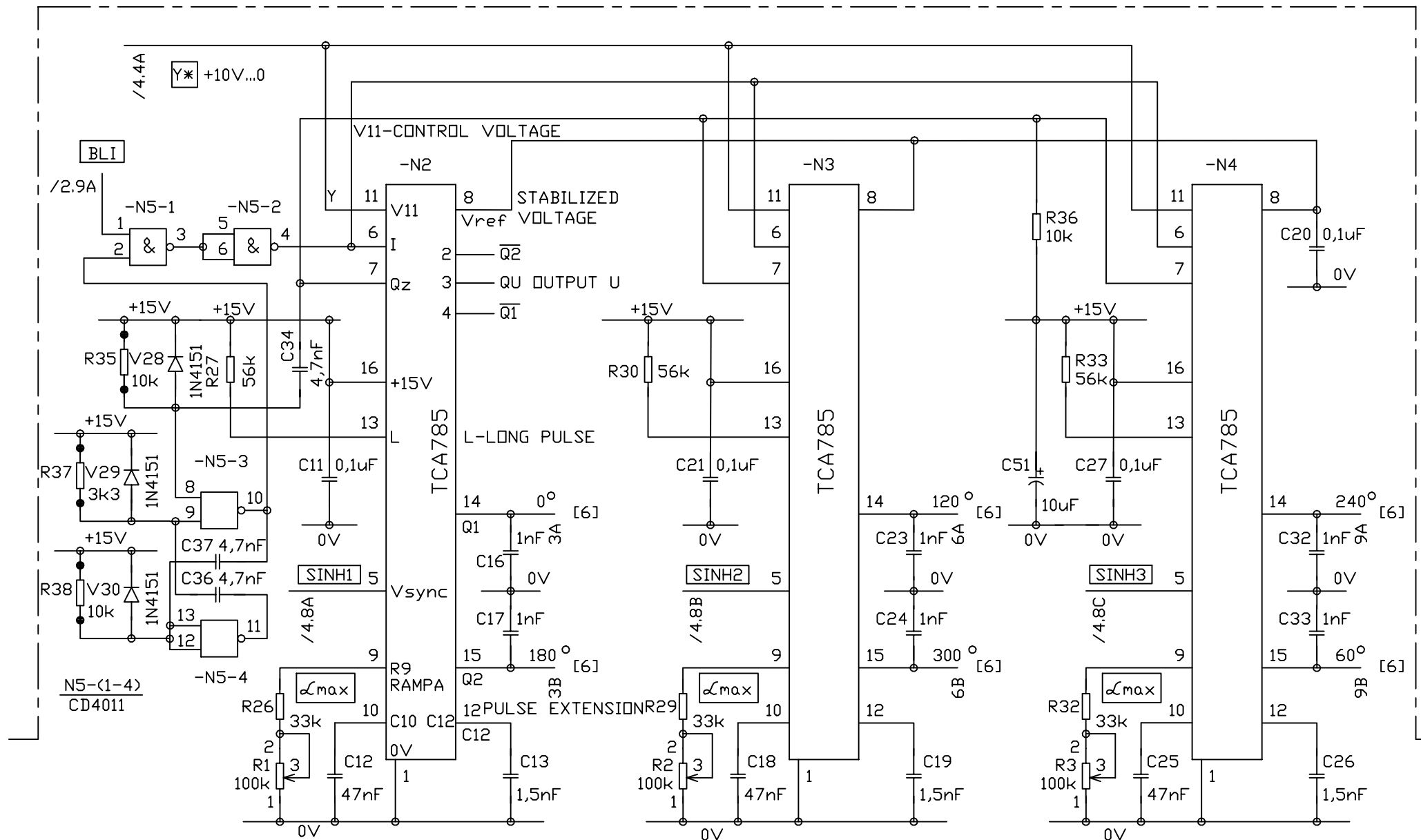
GENERATOR CESLJA

GENERATOR IMPULSA 1

IMPULSNA JEDINICA

GENERATOR IMPULSA 2

GENERATOR IMPULSA 3



PODESIVAC C13,C15,C26=10nF SIRINA IMPULSA 90°-100°

Datum izr. 5.11.2010
Projektant Istvan Nad
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STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

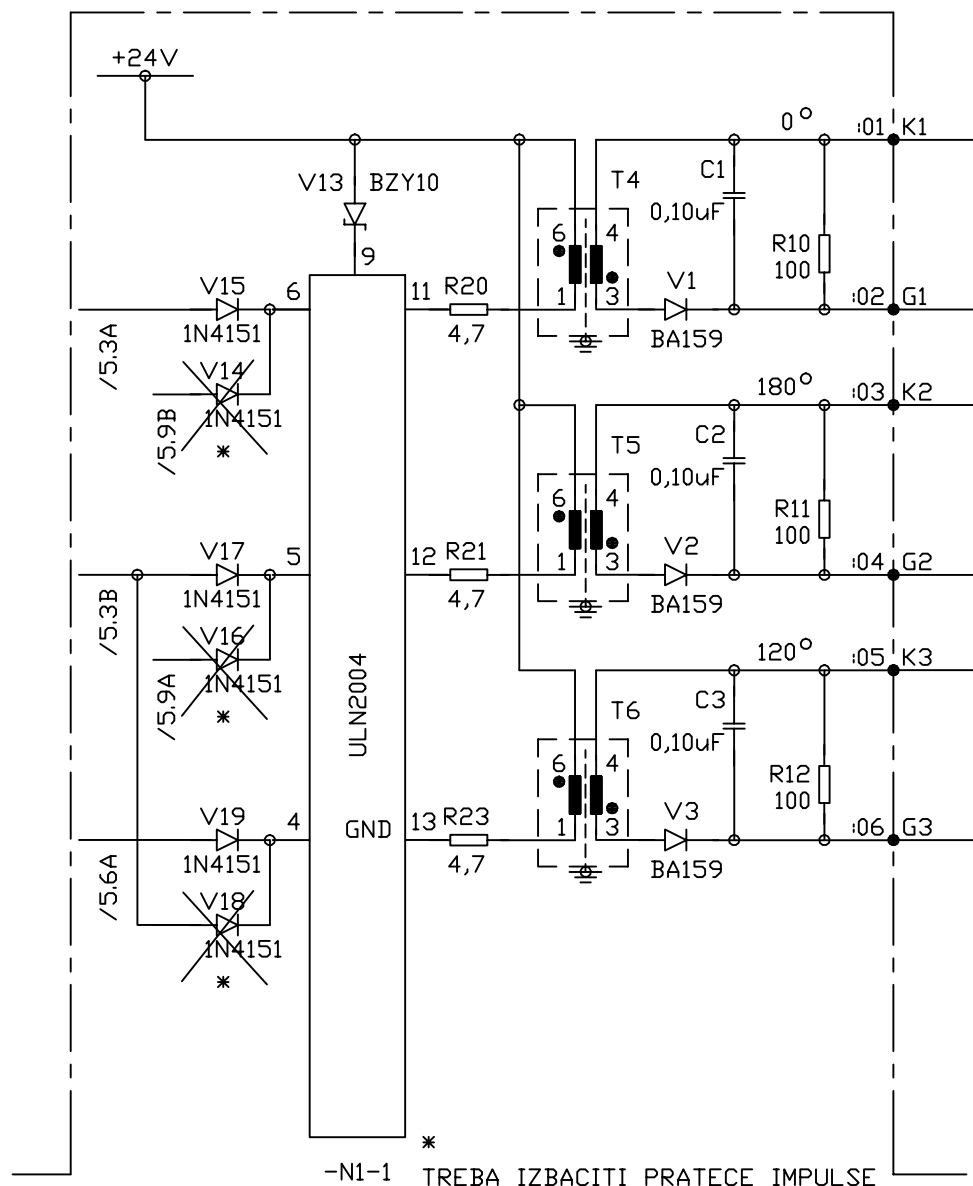
TROFNAP - V004

=A1 /5

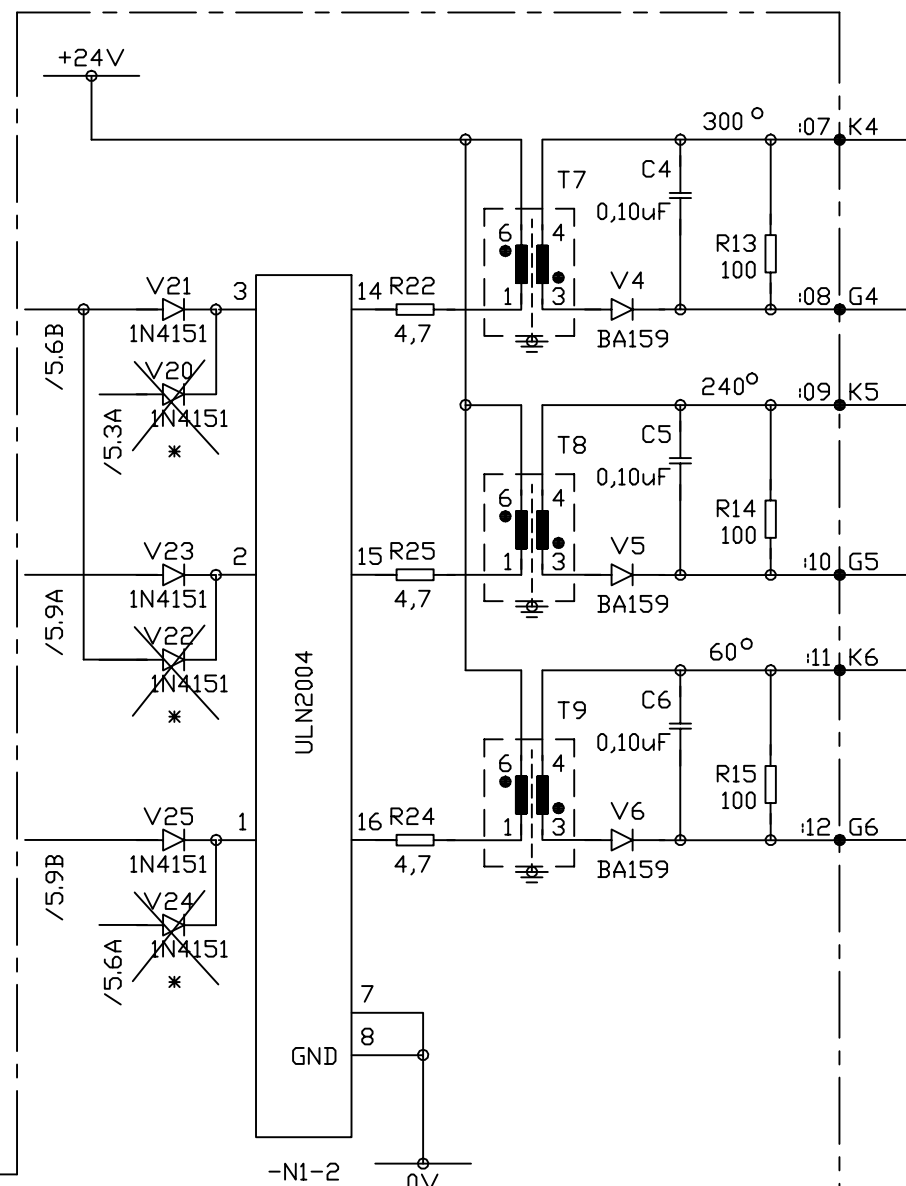
+TRI

List 7
8 Listova

IMPULSNI TRANSFORMATORI



-N1-1 TREBA IZBACITI PRATECE IMPULSE
KOD PODESIVACA TROFAZNOG NAPONA



-N1-2 0V

Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
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STRUJNA SEMA

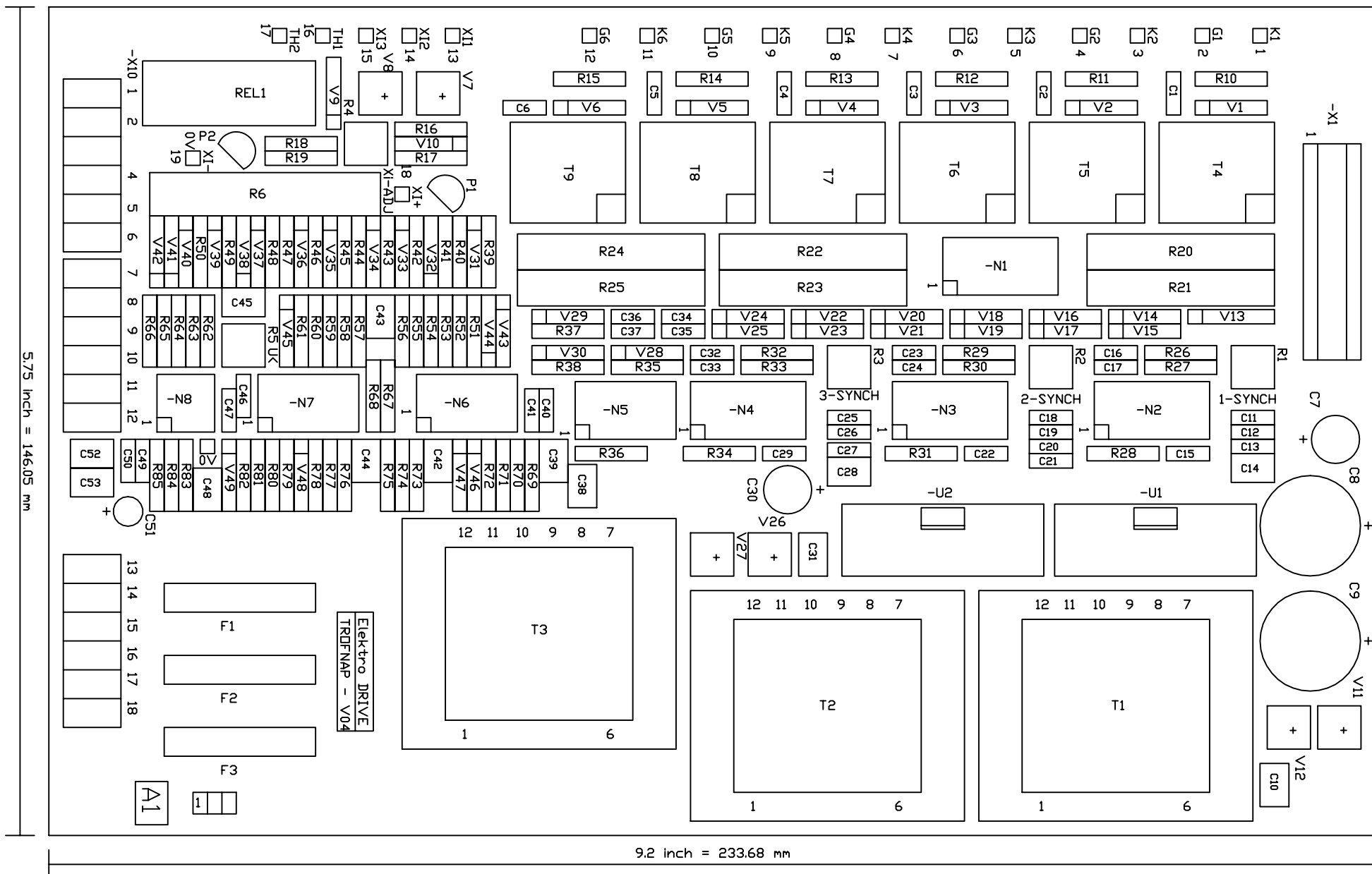
TIROSTORSKI REGULISANI ISPRAVLJAC

TROFNAP – V004

=A1 /6
+ TRI

List 8
8 Listova

0 1 2 3 4 5 6 7 8 9



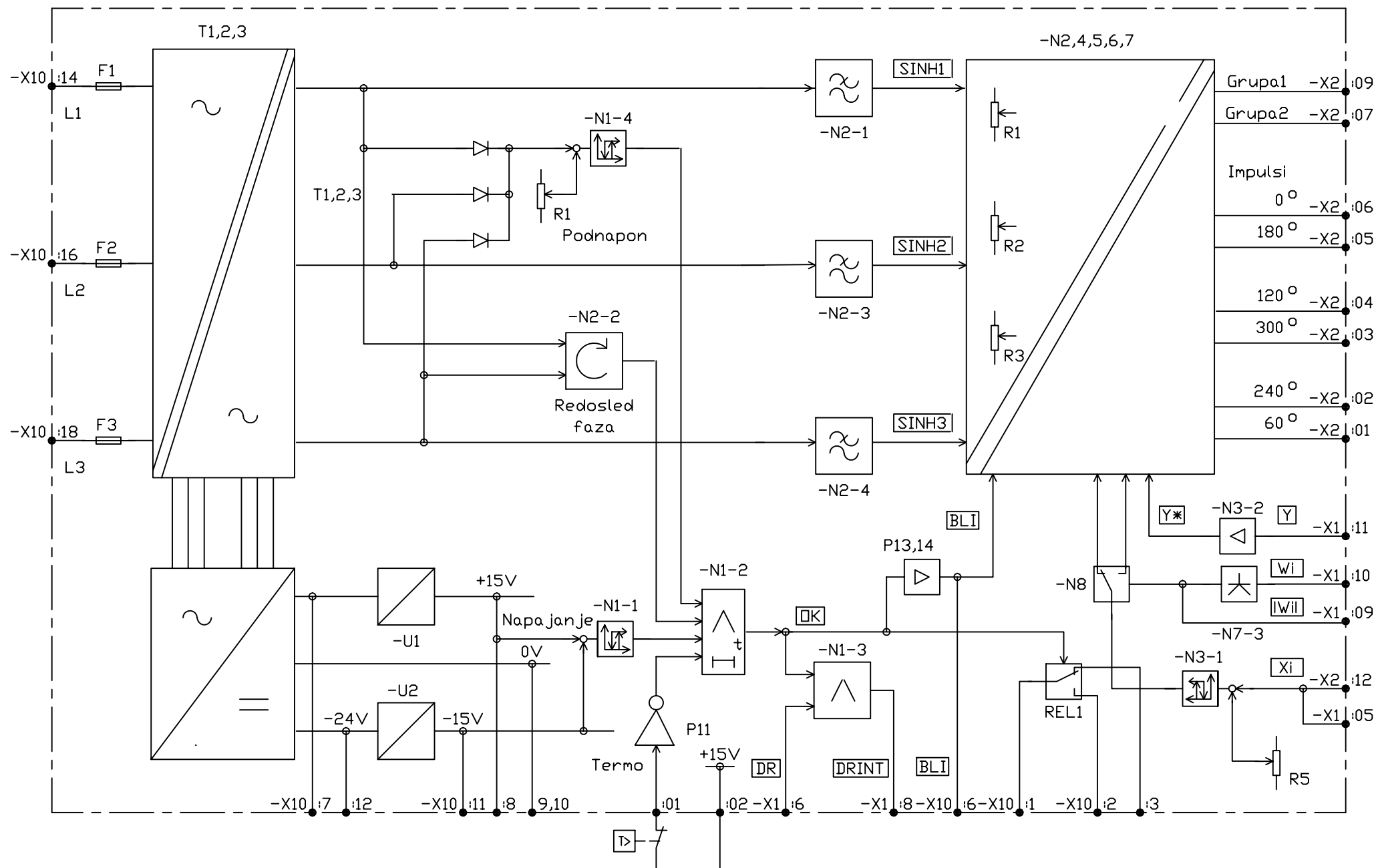
SPECIFIKACIJA MATERIJALA : ŠTAMPANA PLOČA "TROFNAP-V004"

OZNAKA	TIP ELEMENTA	Kom.
T1, T2, T3	TRANSFORMATOR ZA NAPAJANJE EI48/21/380V/2*11+20V/T40E	3
T4, T5, T6, T7, T8, T9	IMPULSNI TRAFO, ZKB 4721-005, 2:1 250miks	6
V7, V8, V11, V12, V26, V27	ISPR. B250C1500 B250V/225V/1,5A	6
N8	PODNOZJE M/PK1/M DIL8	1
N5, N6, N7	PODNOZJE M/PK1/M DIL14	3
N1, N2, N3, N4	PODNOZJE M/PK1/M DIL16	4
U1, U2	RASHLADNO TELO SK104/TO220/38,1mm/11K-W	2
C51	C/EL EKO 10uF/20%/40V/5,5*12.5mm RM2,5mm	3
C7, C30	C/EL EKO 100uF/20%/40V/8,5*13.5mm RM5mm	2
C8, C9	C/EL EKO 1000uF/20%/50V/16,5*26,5mm, RM7,5mm	2
C12, C18, C25	C/MKT B32520 47nF/10%/63V/RM5mm	12
C11, C20, C21, C27, C35, C40, C41, C43, C46, C47, C49, C50	C/MKT B32520 0,10uF/10%/63V/RM5mm	12
C1, C2, C3, C4, C5, C6	C/MKT B32520 0,10uF/10%/63V/RM5mm	6
C39, C42, C44	C/MKT B32520 0,33uF/10%/63V/RM5mm	3
C10, C14, C28, C31, C38, C45, C48, C52, C53	C/MKT B32520 0,47uF/10%/63V/RM5mm	9
C15, C16, C17, C22, C23, C24, C29, C32, C33	C/K CK05 1000pF/10%/200V/RM5,08mm	9
C13, C19, C26	C/K CK05 1500pF/10%/200V/RM5,08mm	3
R20, R21, R22, R23, R24, R25	R KH208-8 4R7/10%/5,0W/70C/25*6,4mm	6
R16	R/SMA 0207 47R5/1%/0,6W/70C/6,5*2,5mm	1
R10, R11, R12, R13, R14, R15, R56	R/SMA 0207 100R/1%/0,6W/70C/6,5*2,5mm	7
R17	R/SMA 0207 511R/1%/0,6W/70C/6,5*2,5mm	3
R51	R/SMA 0207 1K10/1%/0,6W/70C/6,5*2,5mm	1
R18	R/SMA 0207 1K21/1%/0,6W/70C/6,5*2,5mm	1
R39	R/SMA 0207 1K82/1%/0,6W/70C/6,5*2,5mm	5
R42, R43, R47, R48, R61	R/SMA 0207	1

	2K21/1%/0,6W/70C/6,5*2,5mm	
R64	R/SMA 0207 4K75/1%/0,6W/70C/6,5*2,5mm	1
R37	R/SMA 0207 3K32/1%/0,6W/70C/6,5*2,5mm	1
R19, R44, R46	R/SMA 0207 5K62/1%/0,6W/70C/6,5*2,5mm	6
R35, R36, R38, R57, R60, R68	R/SMA 0207 10K0/1%/0,6W/70C/6,5*2,5mm	6
R71, R72, R75, R78, R79, R80	R/SMA 0207 12K1/1%/0,6W/70C/6,5*2,5mm	6
R40, R52	R/SMA 0207 15K0/1%/0,6W/70C/6,5*2,5mm	2
R70, R74, R77, R84	R/SMA 0207 22K1/1%/0,6W/70C/6,5*2,5mm	4
R26, R29, R32, R41, R50, R67, R69, R73, R76, R81, R82	R/SMA 0207 33K121%/0,6W/70C/6,5*2,5mm	11
R49, R62, R63, R66	R/SMA 0207 47K5/1%/0,6W/70C/6,5*2,5mm	4
R53, R54, R55	R/SMA 0207 51K1/1%/0,6W/70C/6,5*2,5mm	3
R27, R30, R33	R/SMA 0207 56K1/1%/0,6W/70C/6,5*2,5mm	3
R59	R/SMA 0207 68K1/1%/0,6W/70C/6,5*2,5mm	1
R28, R31, R34, R45, R65	R/SMA 0207 100K/1%/0,6W/70C/6,5*2,5mm	5
R83	R/SMA 0207 182K/1%/0,6W/70C/6,5*2,5mm	1
R58	R/SMA 0207 200K/1%/0,6W/70C/6,5*2,5mm	1
R85	R/SMA 0207 274K/1%/0,6W/70C/6,5*2,5mm	1
R4	P/SL CT6P 500R/10%/0,5W/70C/LIN	1
R5	P/SL CT6P 10K/10%/0,5W/70C/LIN	1
R1,R2,R3	P/SL CT6P 100K/10%/0,5W/70C/LIN	3
X1: UTIKAC	UTIK. 2,5MSF/15pol	1
REL 1	RELE V23127-B6- A101/24V/1200oma/SIEMENS	1
F1, F2, F3	OSIGURAC 0,4A/250V/F/5*20mm	3
F1, F2, F3	NOS. OSIG. E1073/5*20mm	6
X10: 1 - 18 STEZALJKE	STEZ. Kre/6POLIG/1,5qmm/250V/RM=5mm	3
Spojni jezicak za GEJT	SPOJ. JEZ. 123.011.12625/2,8*0,8mm/1p=10	19
Nat. spojka za GEJT	NAT. SPOJ. 35414/2,8*0,8mm/ROT./1p=10k	34

X: Lemne usice	LEM. USI. Typ60-1399-14/11*1mm/1pak=100kom	18
X: VIJAK	VIJAK M3*10/4.8ZN/DIN7985/1p=100k	6
X: MATICA	MATICA M3/4.8ZN/DIN934/1p=100k	4
X: PODLOSKA	PODLOSKA M3/A2-DIN137/1pak=100kom	10
ODSTOJNIK	ODSTOJNIK B5.13203/M3/20mm/lg7,0mm	4
ODSTOJNIK	ODSTOJNIK B5.13503/M3/50mm/lg7,0mm	4
P1	TRAN. BC327-40 PNP 800mA/45V/SOT54	1
P2	TRAN. BC639-16 NPN 1A/80V/SOT54	1
V31, V45	Z-DIODA BZX79/C4V7 4,7V/500mW/DO35	2
V44	Z-DIODA BZX79/C10 10V/500mW/DO35	1
V34, V35	Z-DIODA BZX79/C12 12V/500mW/DO35	2
V41	Z-DIODA BZX79/C18 18V/500mW/DO35	1
V10	Z-DIODA BZX79/C24 24V/500mW/DO35	1
V13	Z-DIODA BZX85/C10 10V/1300mW/DO41	1
V1, V2, V3, V4, V5, V6	DIODA BA159 1A/1000VR/DO41	6
V43	DIODA BAT48 0,2A/40VR/DO35	1
V9, V46, V47, V48	DIODA 1N4007 1A/1000VR/DO41	4
V14, V15, V16, V17, V18, V19, V20, V21, V22, V23, V24, V25, V28, V29, V30, V32, V33, V36, V37, V38, V39, V40, V42, V49	DIODA 1N4148 0,2A/75VR/DO35	24
N1	IC's ULN2804	1
N2, N3, N4	IC's TCA785	3
N6, N7	IC's LM348N	3
N8	IC's UA741 (DIL8)	1
N5	IC's MC14011BCP	1
U1	IC's UA7815C (TO220)	1
U2	IC's UA7915C (TO220)	1
X: PLOCA	STAMPANA PLOCA "TROFNAP-V004" -A1	1

BLOK SEMA



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STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

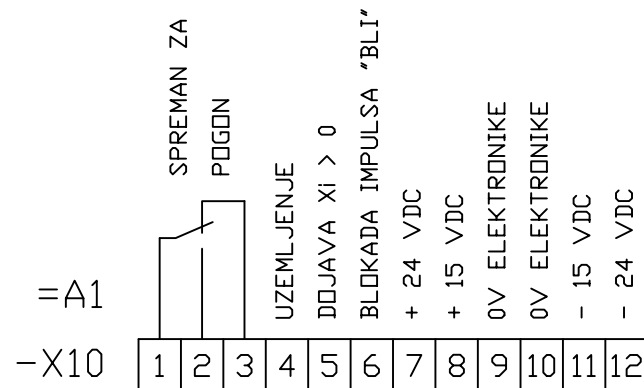
TROFNAP +4K V002

+ TRI

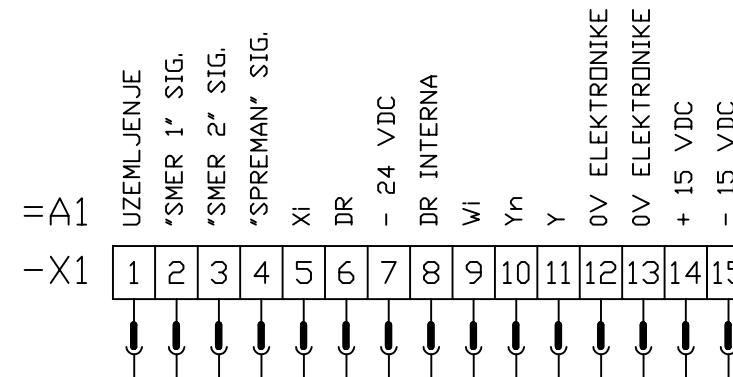
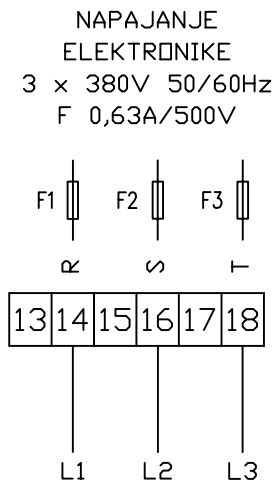
List 1
 9 Listova

STEZALJKE ZA SPOLJNO VEZIVANJE

KONEKTORSKA VEZA SA =A2



STEZALJKE ZA SPOLJNO
POVEZIVANJE



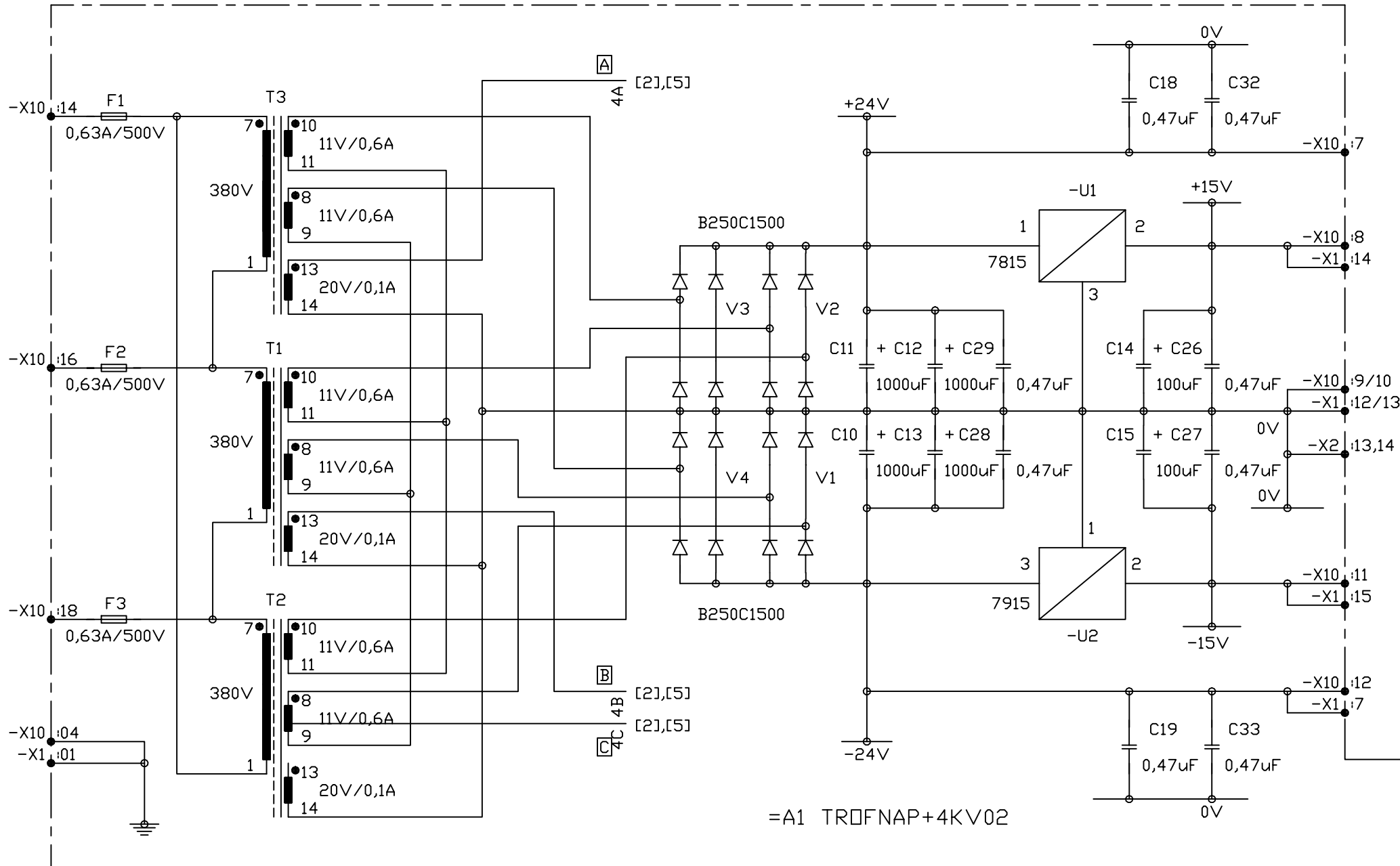
KONEKTORSKA VEZA SA =A2

SPOLJNA OPTERETIVOST
NAPONSKIH IZVORA

IZVOR	DODATNO
+24V	150mA
-24V	150mA
+15V	100mA
-15V	100mA

FUNKCIJE POTENCIOMETARA

- A1-R1 PRAG KONT. MREZNOG NAPONA
- A1-R2 KRAJNI UGAD PALJENJA R-T
- A1-R3 KRAJNI UGAD PALJENJA S-R
- A1-R4 KRAJNI UGAD PALJENJA T-S
- A1-R5 PRAG KOMPARATORA Xi > 0
- A3-R1 NORMIRANJE VRED. STRUJE



=A1 TROFNAP+4KV02

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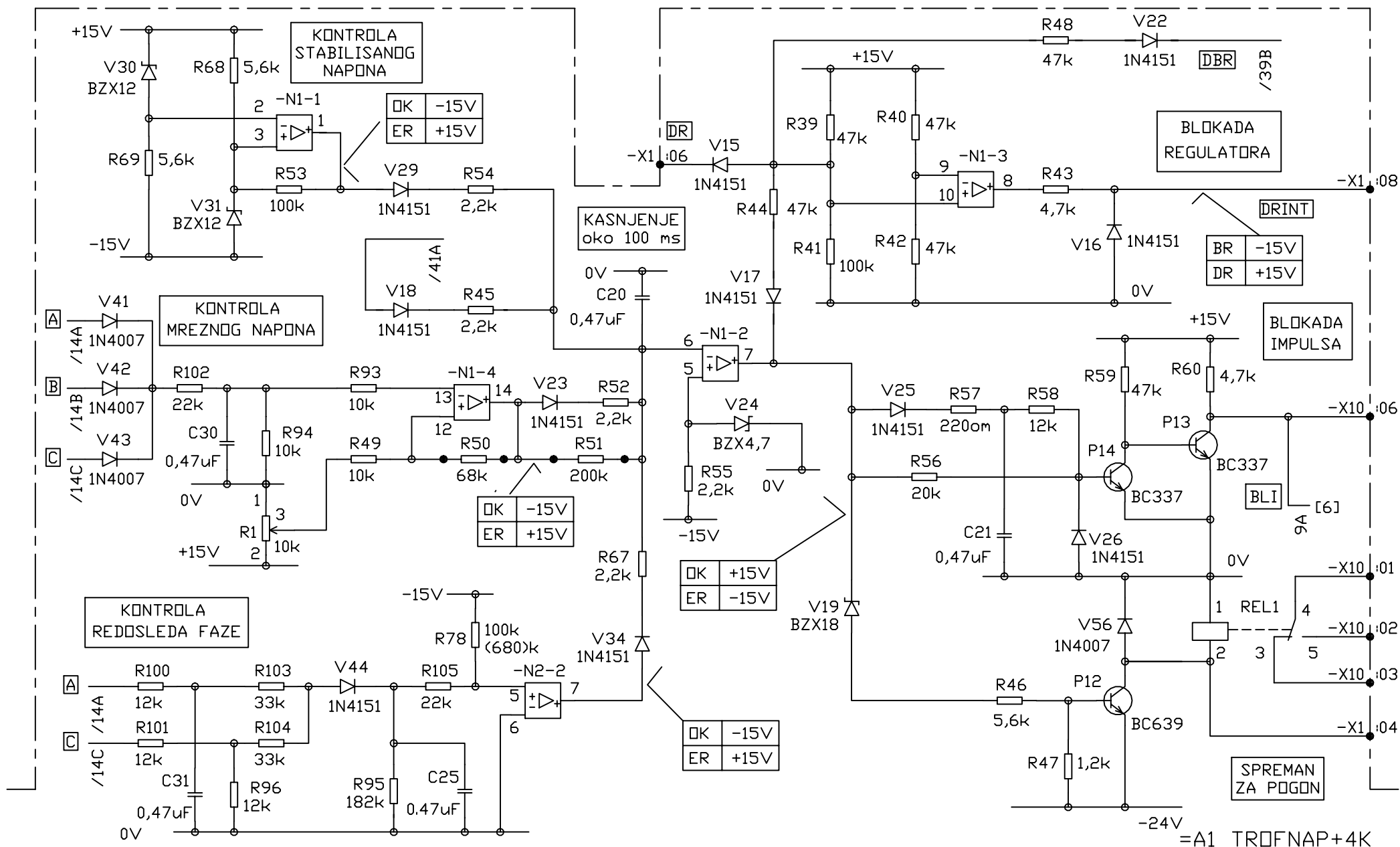
STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

TROFNAP +4K V002

=A1 /1

List 3
9 Listova


$$=A1 \quad \text{TR} \square \text{FNAP}+4\text{K}$$

ISPRAVLJAC ZADATE VREDNOSTI STRUJE

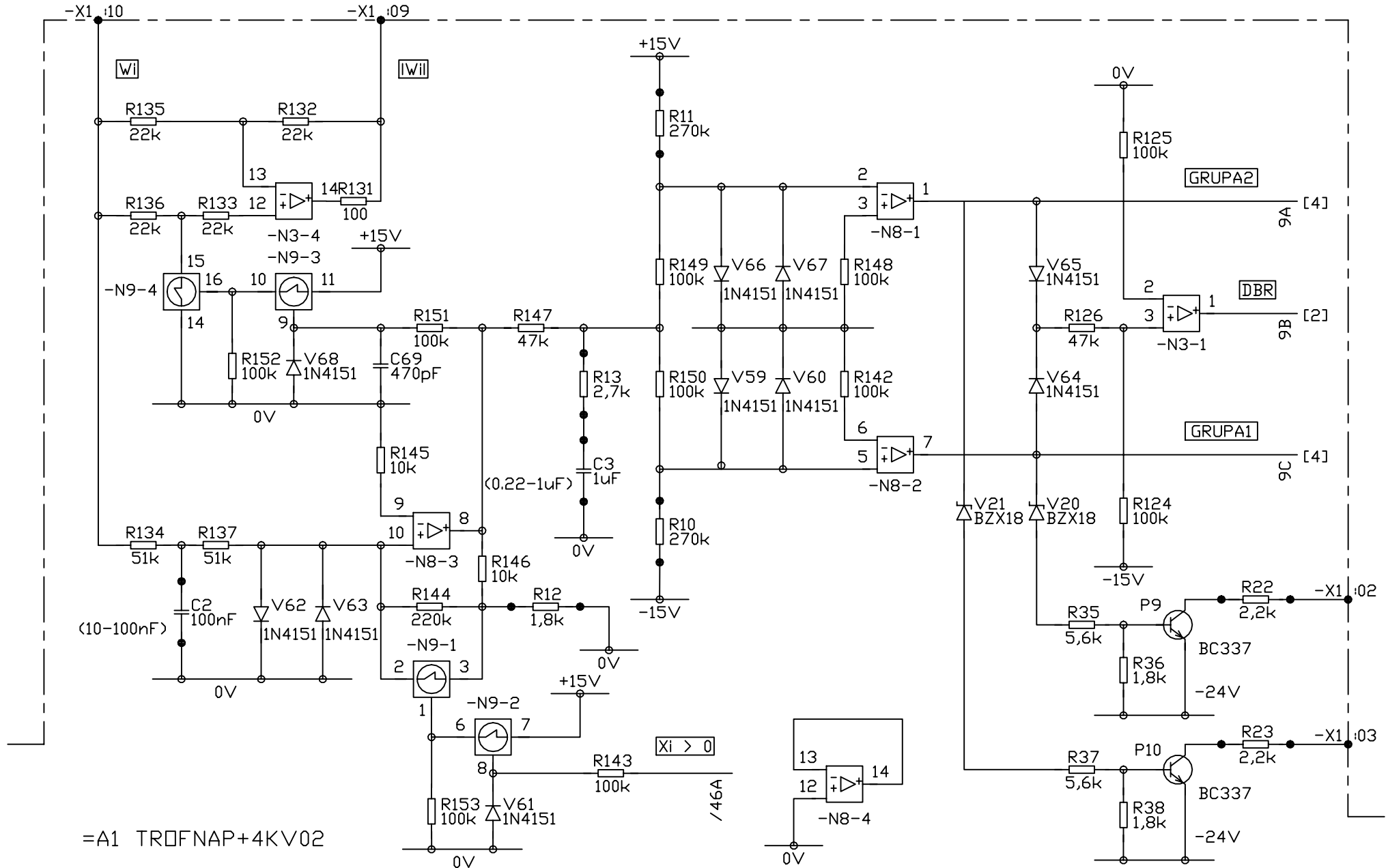
DETEKTOR SMERA

KASNJENJE

AUTOMATIKA ZA PREKLAPANJE

LOGIKA ZA UPRAVLJANJE GRUPAMA

SIGURNOSNA LOGIKA
SIGNALIZACIJA SMERA



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TROFNAP +4K V002

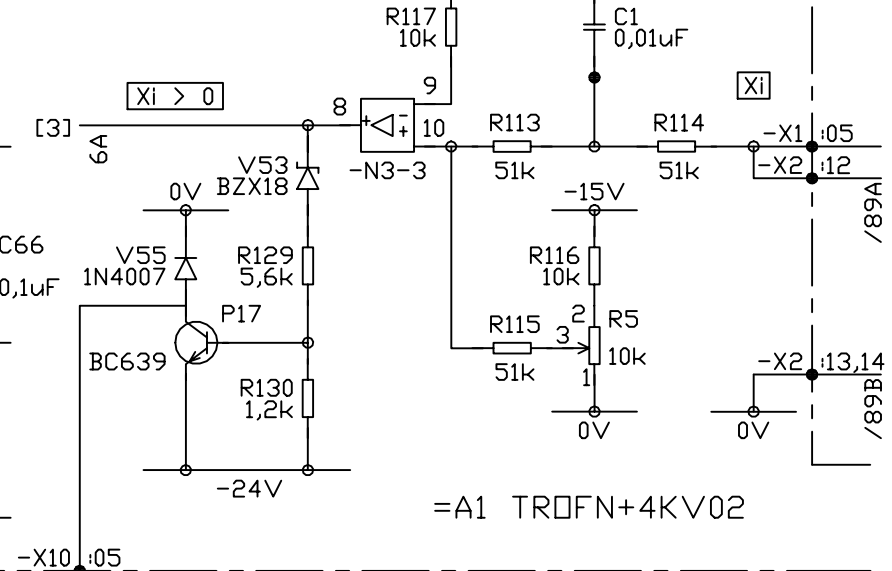
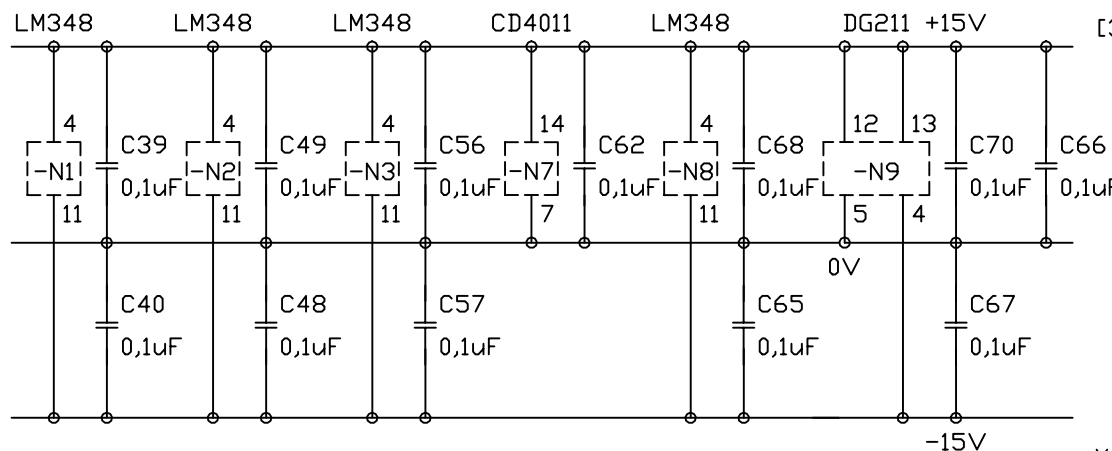
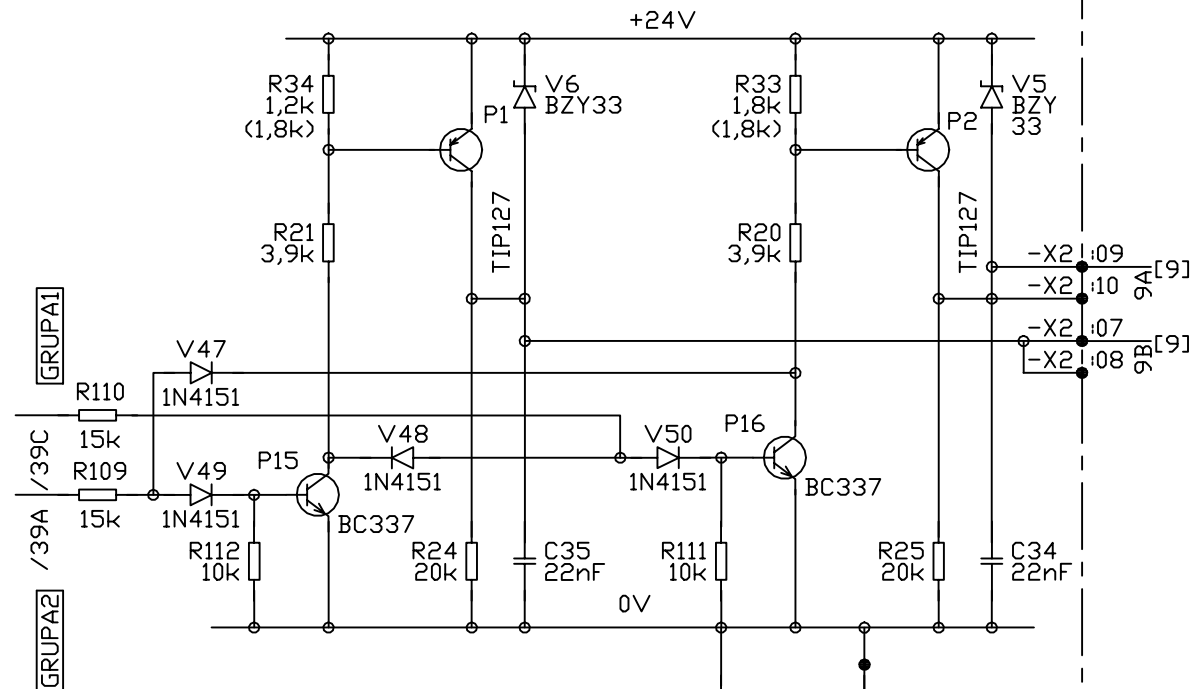
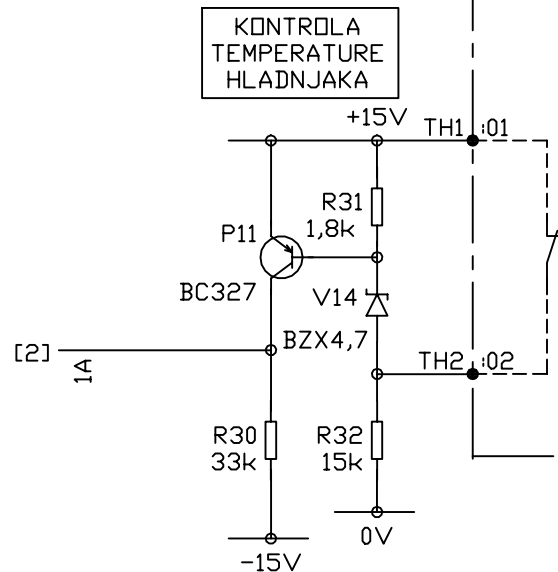
=A1 /3

+TRI

List 5
9 Listova

FILTAR SINHRONIZACIONIH NAPONA
NAPAJANJE INTEGRISANIH KOLA

POJACAVACI ZA UPRAVLJANJE GRUPAMA IMULSNIH TRANSFORMATORA
KOMPARATOR REKIDNOG VODJENJA



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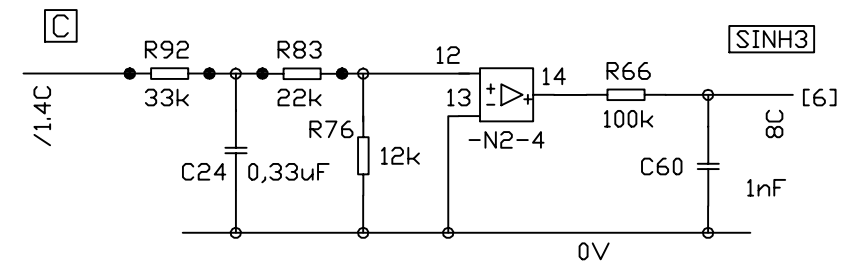
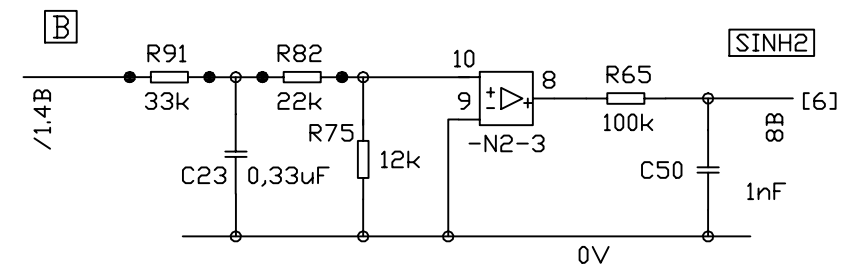
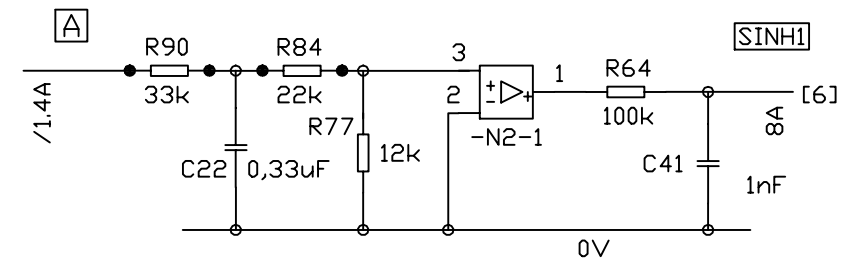
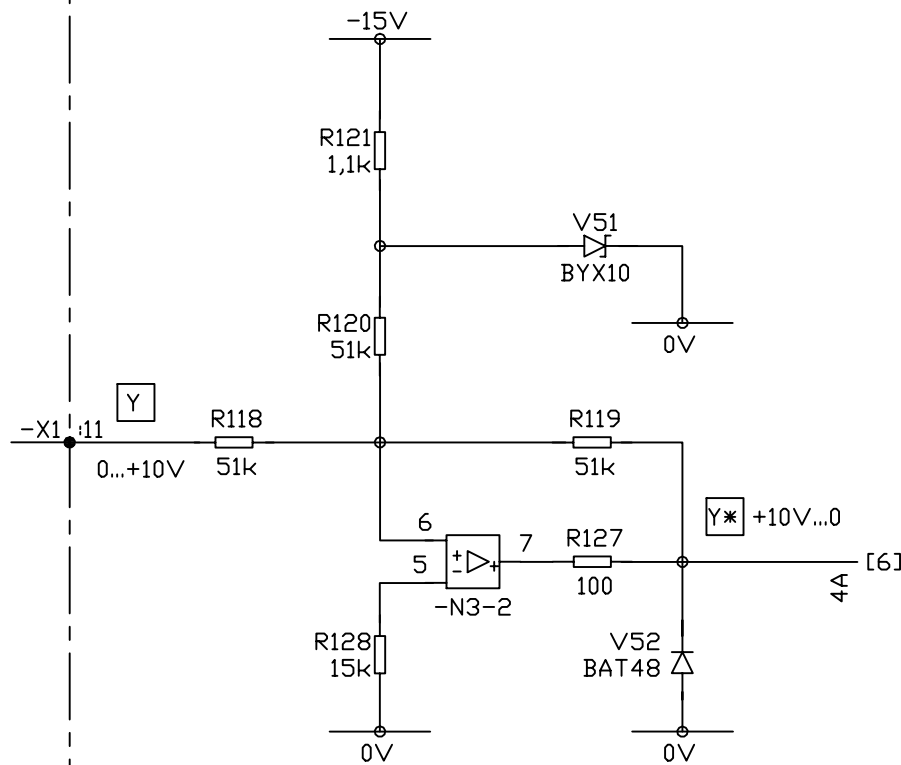
TROFNAP +4K V002

=A1 /4

List 6
9 Listova

INVERTOR UGLA PALJENJA

FILTAR SINHRONIZACIONIH NAPONA



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=A1 /5
+TRI

List 7
9 Listova

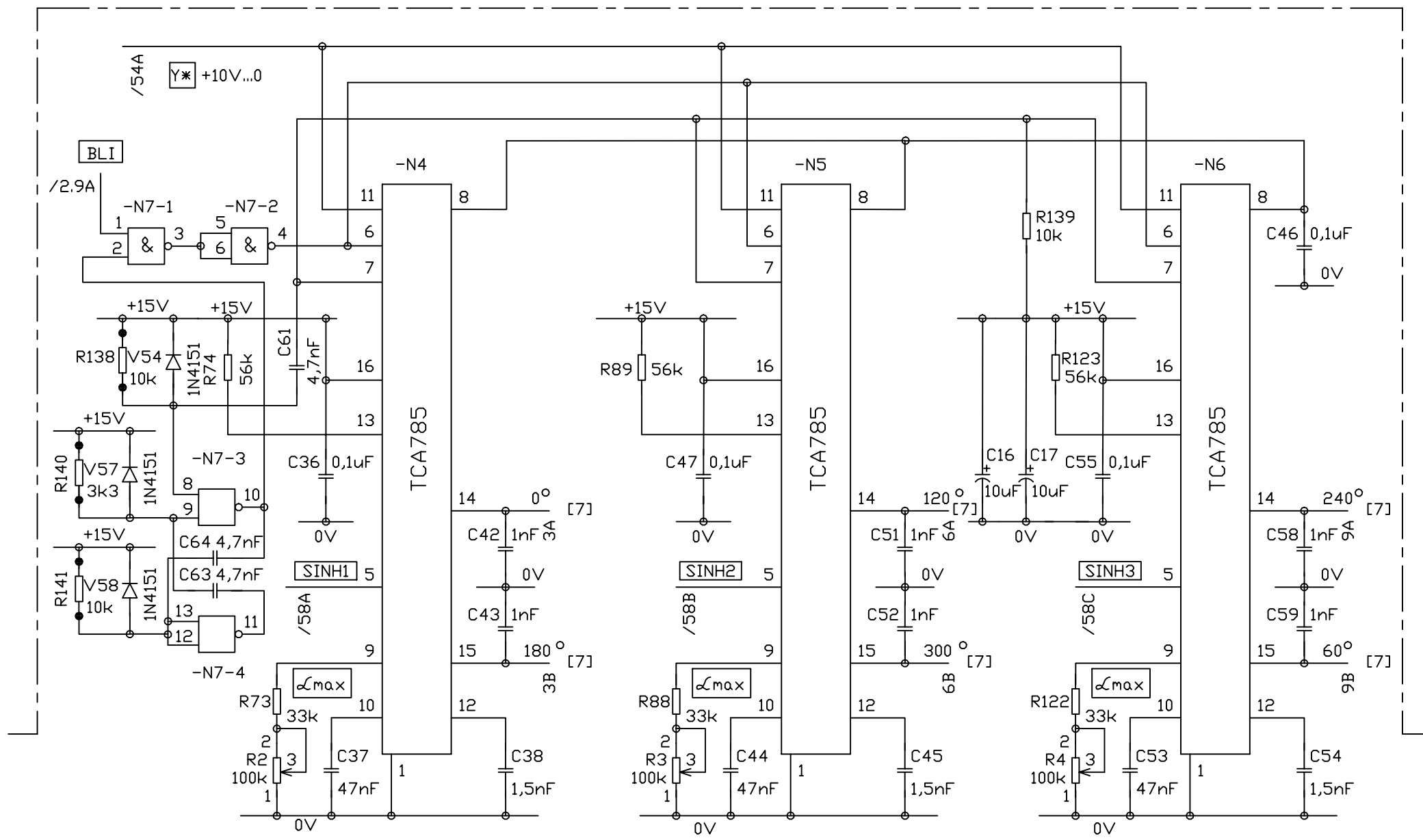
GENERATOR CESLJA

SINHRONIZOVANO PREMA
R-T (SINH1), IMP. 0° I 180°

GENERATOR IMPULSA

SINHRONIZOVANO PREMA
S-R (SINH2), IMP. 120° I 300°

SINHRONIZOVANO PREMA
T-S (SINH3), IMP. 240° I 60°



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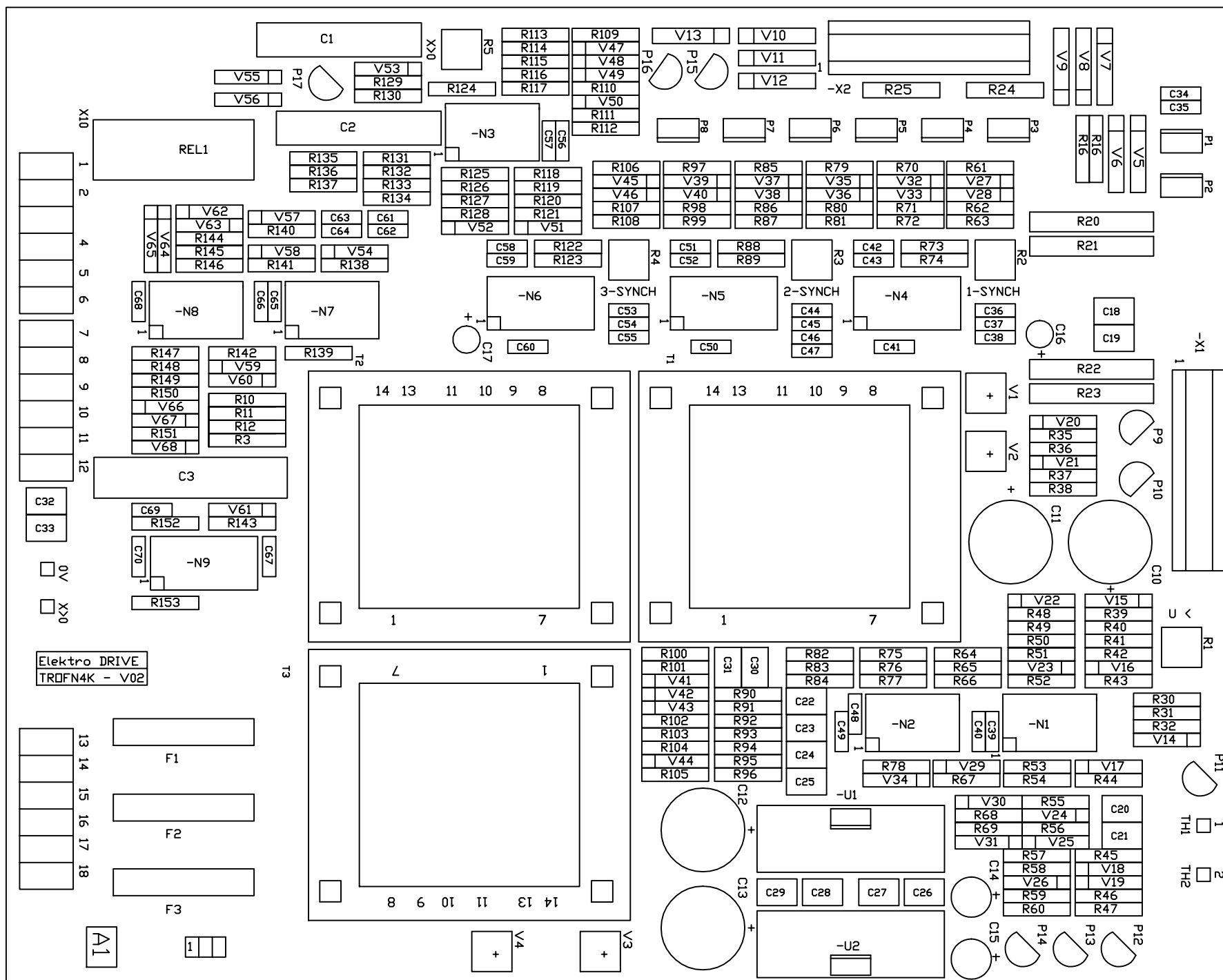
STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

TROFNAP +4K V002

=A1
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List 8
9 Listova



Elektro DRIVE
TROFN4K - V02

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RASPORED ELEMENATA

TIROSTORSKI REGULISANI ISPRAVLJAC

TROFN4K - V02

=A1
+ TRI

List 1
1 Listova

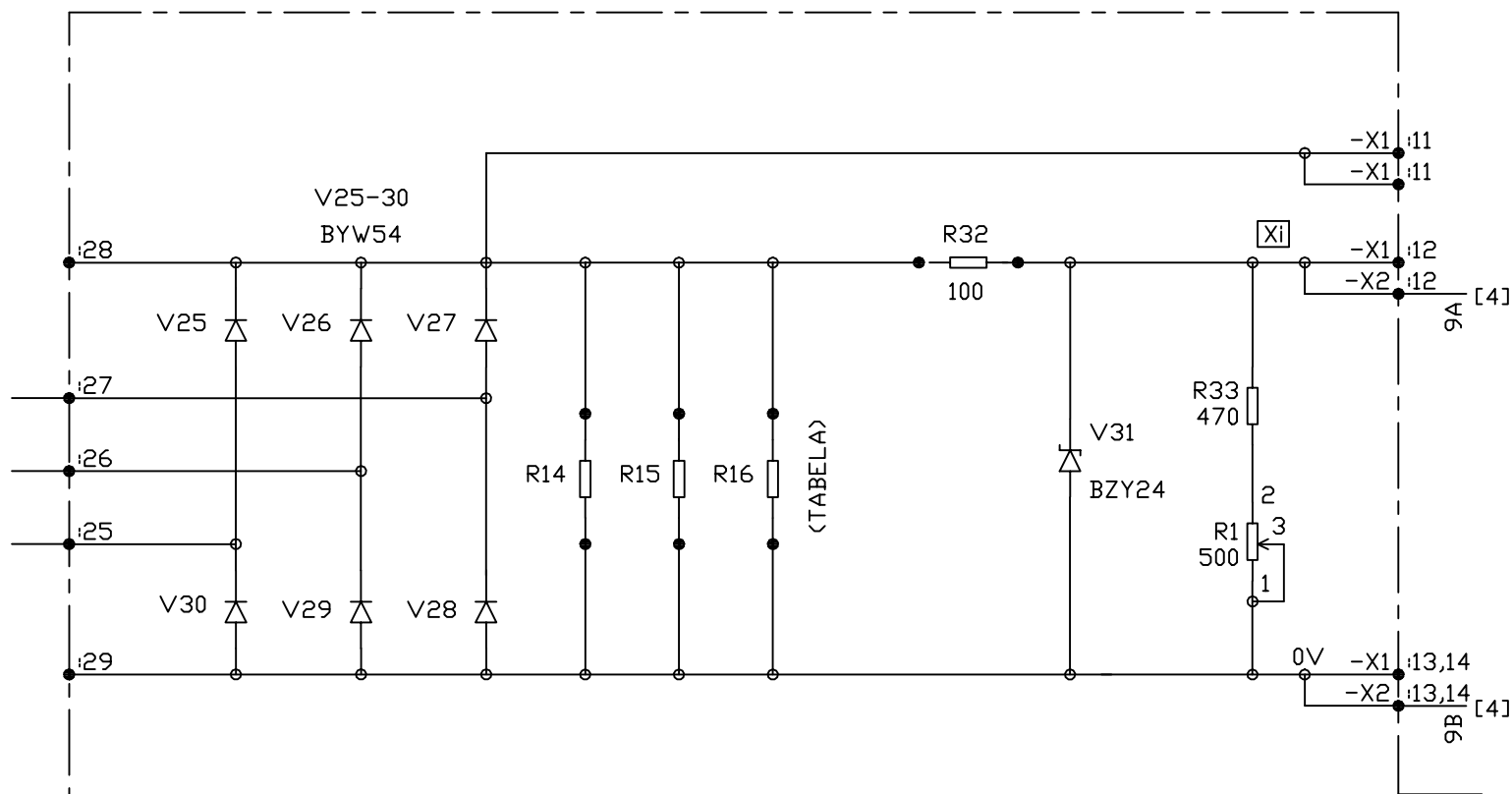
SPECIFIKACIJA MATERIJALA : ŠTAMPANA PLOČA "TROFN4K-V02"

OZNAKA		TIP ELEMENTA	Ko m.
T1, T2, T3		TRANSFORMATOR ZA NAPAJANJE /380V/2*11V/0.6A+20V/1A	3
V1, V2, V3, V4		ISPR. B250C1500 B250V/225V/1,5A	4
C10, C11, C12, C13		C/EL EKO 1000uF/20%/50V/16,5*26,5mm,RM7,5mm	4
C14, C15		C/EL EKO 100uF/20%/50V/8,5*13.5mm RM5mm	2
C16, C17		C/EL EKO 47uF/20%/25V/ 932C2(M)	2
C3		C/MKT (C219-zuti okrugli) 1uF/20%/ (0.22uF-1uF)	1
C1, C2		C/MKT (C219-zuti okrugli) 100nF/20%/100V/ (10nF-100nF)	2
C18, C19, C20, C21, C25, C26, C27, C28, C29, C30, C31,C32, C33		C/MKT B32520 0,47uF/10%/63V/RM5mm	13
C22, C23, C24		C/MKT B32520 0,33uF/10%/63V/RM5mm	3
C36, C39, C40, C46, C47, C48, C49, C55, C56, C57, C62, C65, C66, C67, C68, C70		C/MKT B32520 0,10uF/10%/63V/RM5mm	16
C37, C44, C53		C/MKT B32520 47nF/10%/63V/RM5mm	3
C34, C35		C/K (22nF Ns) 22nF/10%/200V/RM5,08mm	2
C61, C63, C64		C/K CK05 4700pF/10%/200V/RM5,08mm	3
C38, C45, C54		C/K (zuti 001) 1500pF/10%/200V/RM5,08mm	3
C41, C42, C43, C50, C51, C52, C58, C59, C60		C/K CK05 1000pF/10%/200V/RM5,08mm	9
C69		C/K CK05 470pF/10%/200V/RM5,08mm	1
R22, R23	W	R KH208-8 2K2/5%/(4,0W)	2
R20, R21	W	R KH208-8 3K9/5%/(4,0W)	2
R13	W	R KH208-8 2K7/10%/(2W/)	1
R12	W	R KH208-8 1K8/10%/(2W/)	1
R10, R11	W	R KH208-8 270K/10%/(2W)	2

R127, R131	R/SMA 0207 100R/1%/0,6W/70C/6,5*2,5mm	2
R57	R/SMA 0207 220R/1%/0,6W/70C/6,5*2,5mm	1
R121	R/SMA 0207 1K10/1%/0,6W/70C/6,5*2,5mm	1
R47, R130, R33, R34	R/SMA 0207 1K21/1%/0,6W/70C/6,5*2,5mm	4
R31, R36, R38, R61, R62, R63, R70, R71, R72, R79, R80, R81, R85, R86, R87, R97, R98, R99, R106, R107, R108	R/SMA 0207 1K82/1%/0,6W/70C/6,5*2,5mm	21
R45, R52, R54, R55, R67	R/SMA 0207 2K21/1%/0,6W/70C/6,5*2,5mm	5
R140	R/SMA 0207 3K32/1%/0,6W/70C/6,5*2,5mm	1
R43, R60	R/SMA 0207 4K75/1%/0,6W/70C/6,5*2,5mm	2
R35, R37, R46, R68, R69, R129	R/SMA 0207 5K62/1%/0,6W/70C/6,5*2,5mm	6
R49, R93, R94, R111, R112, R116, R117, R138, R139, R141, R145, R146, R58, R75, R76, R77, R96, R100, R101	R/SMA 0207 10K0/1%/0,6W/70C/6,5*2,5mm	12
	R/SMA 0207 12K1/1%/0,6W/70C/6,5*2,5mm	7
R32, R109, R110, R128	R/SMA 0207 15K0/1%/0,6W/70C/6,5*2,5mm	4
R24, R25, R56,	R/SMA 0207 20K0/1%/0,6W/70C/6,5*2,5mm	3
R82, R83, R84, R102, R105, R132, R133, R135, R136	R/SMA 0207 22K1/1%/0,6W/70C/6,5*2,5mm	9
R30, R73, R88, R90, R91, R92, R103, R104, R122	R/SMA 0207 33K121%/0,6W/70C/6,5*2,5mm	9
R39, R40, R42, R44, R48, R59, R126 R147,	R/SMA 0207 47K5/1%/0,6W/70C/6,5*2,5mm	8
R113, R114, R115, R118, R119, R120 R134, R137	R/SMA 0207 51K1/1%/0,6W/70C/6,5*2,5mm	8
R74, R89, R123	R/SMA 0207 56K1/1%/0,6W/70C/6,5*2,5mm	3
R50	R/SMA 0207 68K1/1%/0,6W/70C/6,5*2,5mm	1
R41, R53, R64, R65, R66, R124, R125 R142, R143, R148, R149, R150, R151, R152, R153	R/SMA 0207 100K/1%/0,6W/70C/6,5*2,5mm	15
R95	R/SMA 0207 182K/1%/0,6W/70C/6,5*2,5mm	1
R51	R/SMA 0207 200K/1%/0,6W/70C/6,5*2,5mm	1
R144	R/SMA 0207	1

		220K/1%/0,6W/70C/6,5*2,5mm	
R78,		R/SMA 0207 270K/1%/0,6W/70C/6,5*2,5mm	2
R1, R5,		P/SL CT6P (1035C) 10K/10%/0,5W/70C/LIN	2
R2, R3, R4,		P/SL CT6P (104 6L) 100K/10%/0,5W/70C/LIN	3
X1,X2: UTIKAC		UTIK. 2,5MSF/15pol	2
REL 1	RELE	V23057-B0006-A401,24V=8A,250V~Shcrak (V23127-B6-A101/24V/1200om/Simens)	1
F1, F2, F3		OSIGURAC 0,63A/500V/F/5*20mm	3
F1, F2, F3		NOS. OSIG. E1073/5*20mm	3
X10: 1 - 18 STEZALJKE		STEZ. Kre/6POLIG/1,5qmm/250V/RM=5mm	3
Spojni jezikak za GEJT		SPOJ. JEZ. 123.011.12625/2,8*0,8mm/1p=10	4
Nat. spojka za GEJT		NAT. SPOJ. 35414/2,8*0,8mm/ROT./1p=10k	4
X: Lemne usice		LEM. USI. Typ60-1399- 14/11*1mm/1pak=100kom	14
X: VIJAK		VIJAK M3*10/4.8ZN/DIN7985/1p=100k	4
X: MATICA		MATICA M3/4.8ZN/DIN934/1p=100k	10
X: PODLOSKA		PODLOSKA M3/A2- DIN137/1pak=100kom	4
ODSTOJNIK		ODSTOJNIK B5.13203/M3/20mm/lg7,0mm	4
ODSTOJNIK		ODSTOJNIK B5.13503/M3/50mm/lg7,0mm	1
P11		TRAN. BC327-40 PNP (M834) 800mA/45V/SOT54	1
P9, P10, P13, P14, P15, P16		TRAN. BC337-40 NPN (M832) 800mA/45V/SOT54	6
P12, P17		TRAN. BC639-16 NPN (F906) 1A/80V/SOT54	2
P3, P4, P5, P6, P7, P8		TRAN. NPN (F12)(P6=F14) TIP 122	6
P1, P2		TRAN. PNP (6F275 VW CHN440) TIP 127	2
V14, V24		Z-DIODA BZX79/C4V7 4,7V/500mW/DO35	2
V51		Z-DIODA BZX79/C10 10V/500mW/DO35	1
V30, V31		Z-DIODA BZX79/C12 12V/500mW/DO35	2
V19, V20, V21, V53		Z-DIODA BZX79/C18 18V/500mW/DO35	4
V6, V5, V13		Z-DIODA BZY79/C24 33V/500mW/DO35	3
V7, V8, V9, V10, V11, V12		DIODA 1N5059 1A/1000VR/DO41	6
V52		DIODA BAT48	1

	0,2A/40VR/DO35	
V41, V42, V43, V55, V56	DIODA 1N4007 1A/1000VR/DO41	5
V15, V16, V17, V18, V22, V23, V25, V26, V27, V28, V29, V32, V33, V34, V35, V36, V37, V38, V39, V40, V44, V45, V46, V47, V48, V49, V50, V54, V57, V58, V59, V60, V61, V62, V63, V64, V65, V66, V67, V68	DIODA 1N4148 (1N4151) 0,2A/75VR/DO35	40
N1, N2, N3, N8	IC's LM348N	4
N7	IC's CD4011 LOGIKA	1
N4, N5, N6,	IC's TCA785	3
N9	IC's DG211 FETOV	1
U1	IC's UA7815C (TO220)	1
U2	IC's UA7915C (TO220)	1
U	RASHLADNO TELO SK104/TO220/38,1mm/11K-W	1
N1, N2, N3, N4, N5, N6, N7, N8	PODNOZJE M/PK1/M DIL14	8
N9	PODNOZJE M/PK1/M DIL16	1
X: PLOCA	STAMPANA PLOCA "TROFNAP-V004" -A1	1



NORMIRANJE MERENJA STRUJE =A3-R2									
40A	60A	100A	125A	160A	200A	300A	450A	600A	850A
470om	270om	180om	100om	180om	150om	18om	12om	18om	12om
2W	2W	4W	4W	2W	4W	25W	25W	25W	25W
STR. TRAFID 100A/0,1A				200A/0,1A		400A/1A		750A/1A	
						R2 SE MONTIRA SPOLJA			

=A3 TRIMP+4KV02

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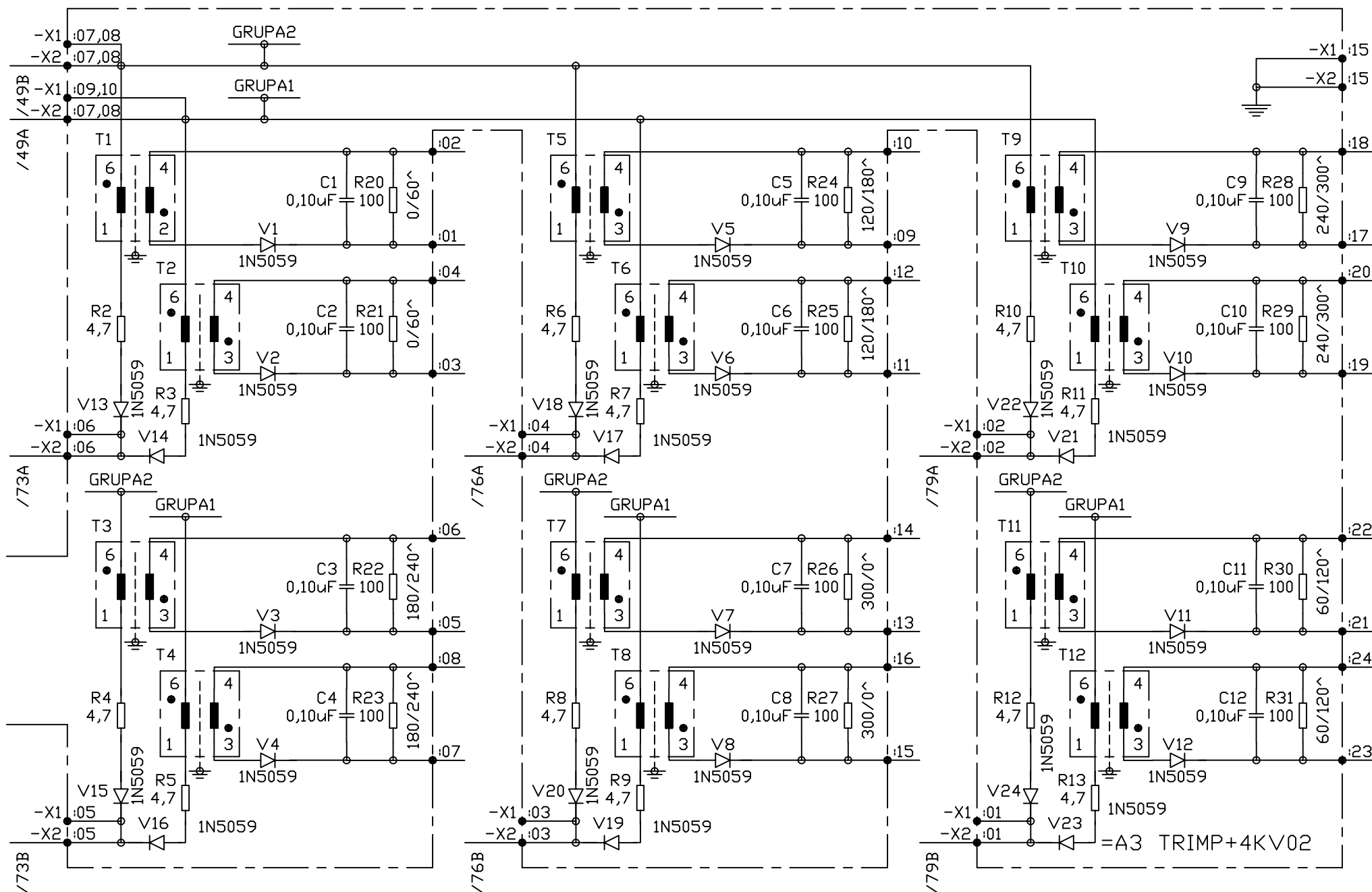
STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

TRIMP +4K V002

=A3 /1
 +TRI+4K

List 1
 2 Listova



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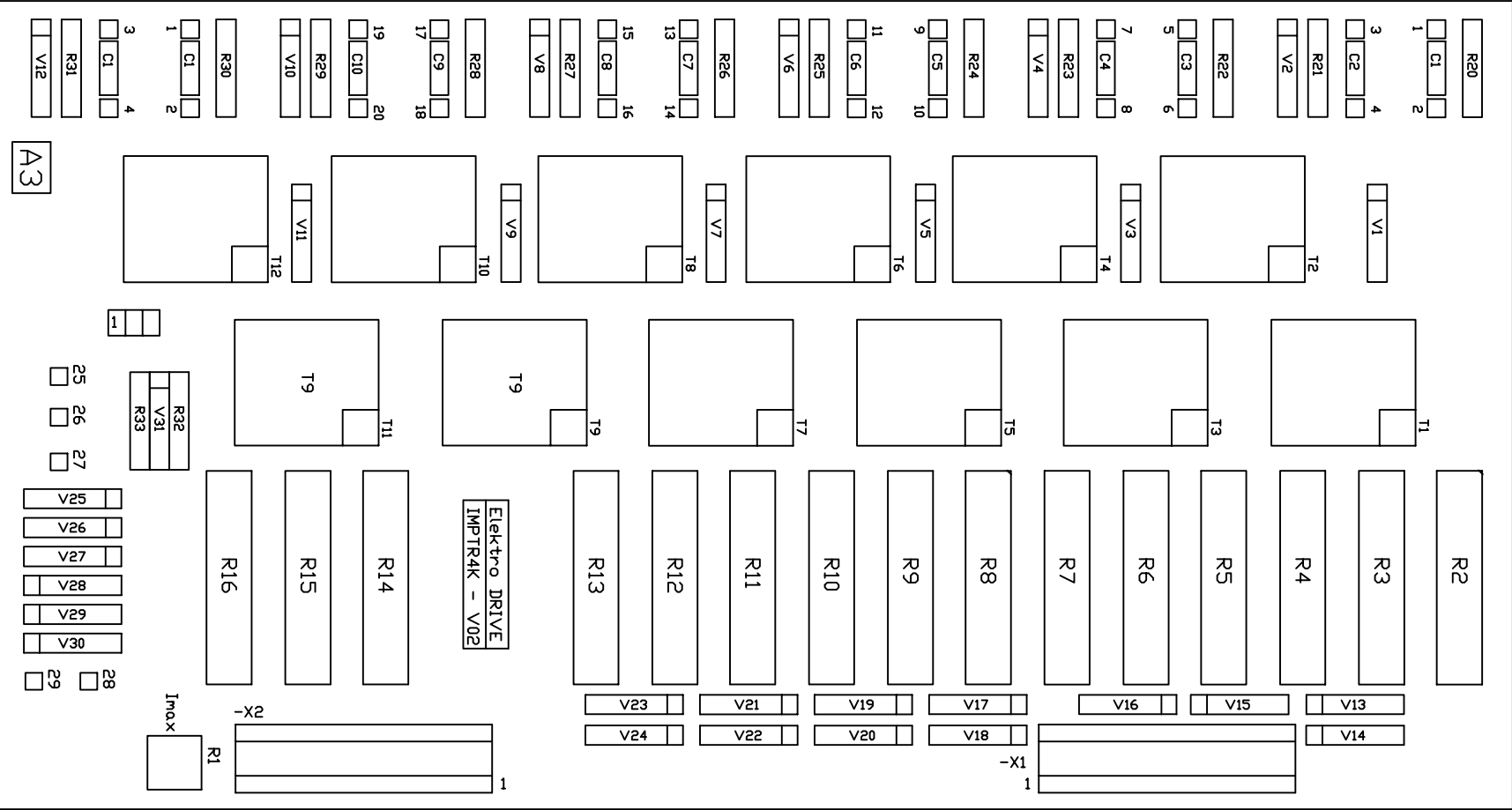
TIROSTORSKI REGULISANI ISPRAVLJAC

TRIMP +4K V002

=A3

/2

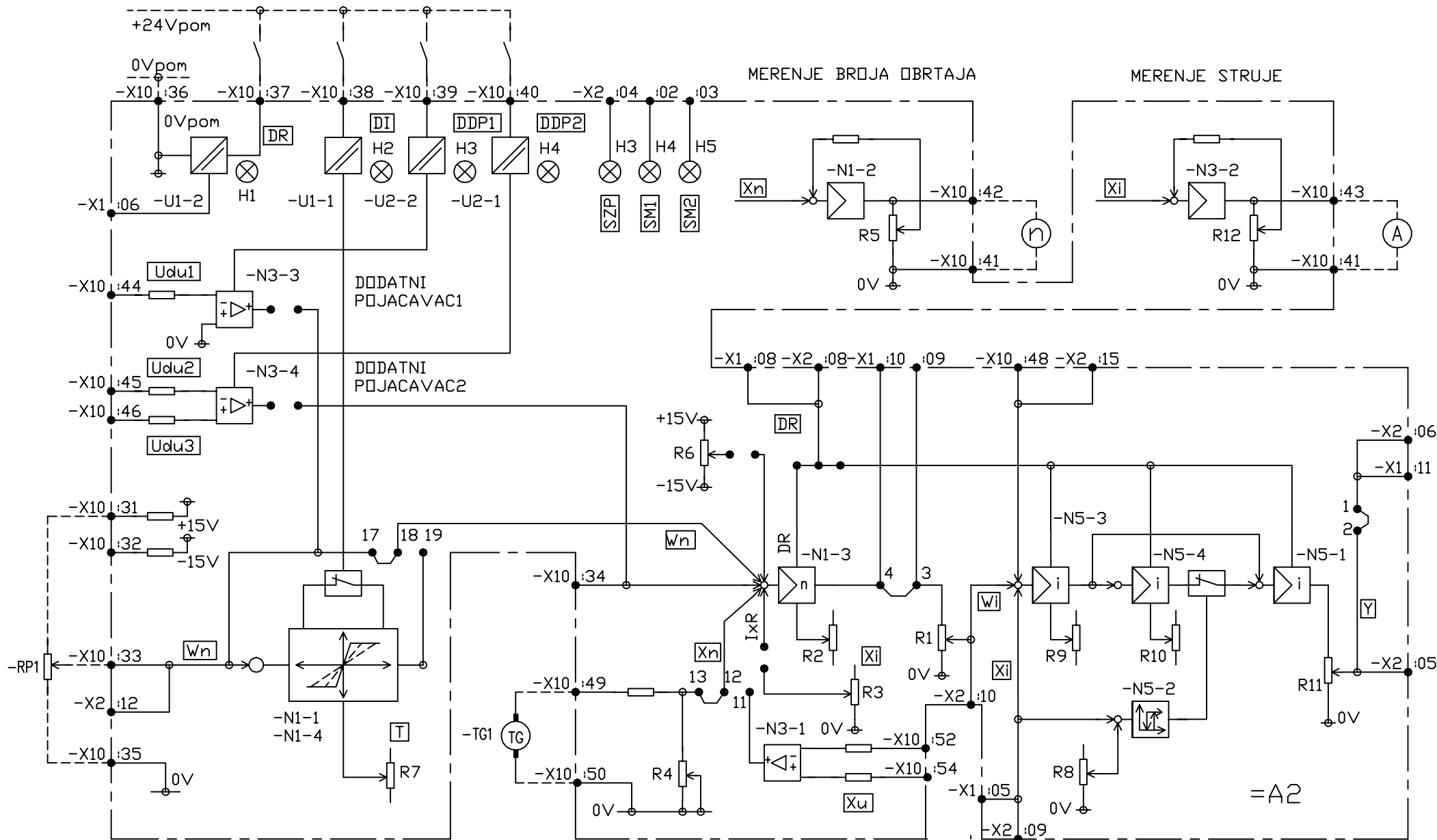
List 2
 Listova



SPECIFIKACIJA MATERIJALA : ŠTAMPANA PLOČA "IMPTR4K-V02"

OZNAKA	TIP ELEMENTA	Kom.
T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12	IMPULSNI TRAFO, ZKB 4721-005, 2:1 250miks	12
C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12	C/MKT B32520 0,10uF/10%/63V/RM5mm	12
R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13	R KH208-8 4R7/10%/5,0W/70C/25*6,4mm	12
R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31	R/SMA 0207 100R/1%/0,6W/70C/6,5*2,5mm	12
R32	R/SMA 0207 100R/1%/0,6W/70C/6,5*2,5mm	1
R33	R/SMA 0207 470R/1%/0,6W/70C/6,5*2,5mm	1
R14,R15,R16 (Vidi tabelu)	R KH208-8 R/10%/5,0W/70C/25*6,4mm	
R1	P/SL CT6P 500R/10%/0,5W/70C/LIN	1
X1: UTIKAC	UTIK. 2,5MSF/15pol	2
Spojni jezikak za GEJT	SPOJ. JEZ. 123.011.12625/2,8*0,8mm/1p=1Q	29
Nat. spojka za GEJT	NAT. SPOJ. 35414/2,8*0,8mm/ROT./1p=10k	29
Spojni jezikak	SPOJ. JEZ. 123.011.12625/2,8*0,8mm/1p=10	5
Nat. spojka	NAT. SPOJ. 35414/2,8*0,8mm/ROT./1p=10k	5
X: Lemne usice	LEM. USI. Typ60-1399- 14/11*1mm/1pak=100kom	
X: VIJAK	VIJAK M3*10/4.8ZN/DIN7985/1p=100k	6
X: MATICA	MATICA M3/4.8ZN/DIN934/1p=100k	4
X: PODLOSKA	PODLOSKA M3/A2- DIN137/1pak=100kom	10
ODSTOJNIK	ODSTOJNIK B5.13203/M3/20mm/lg7,0mm	4
ODSTOJNIK	ODSTOJNIK B5.13503/M3/50mm/lg7,0mm	4
V31	(Z-DIODA BZX79/C24 24V/500mW/DO35) BZY24	1
V25, V26, V27, V28, V29, V30	(DIODA 1N4007 1A/1000VR/DO41) BYW54	6
V1 , V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16, V17, V18, V19, V20, V21, V22, V23, V24	(DIODA BA159 1A/1000VR/DO41) 1N5059	24

ADAPTIVNI REGULATOR
Oznaka celine = A2



INTEGRATOR ZADATE VREDNOSTI

REGULATOR BRZINE

ADAPTIVNI REGULATOR STRUJE

Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
Kontakt tel 024/554-166

WWW.ELEKTRODRIVE.COM

Mob: 00-381-64-1272573

STRUJNA SEMA

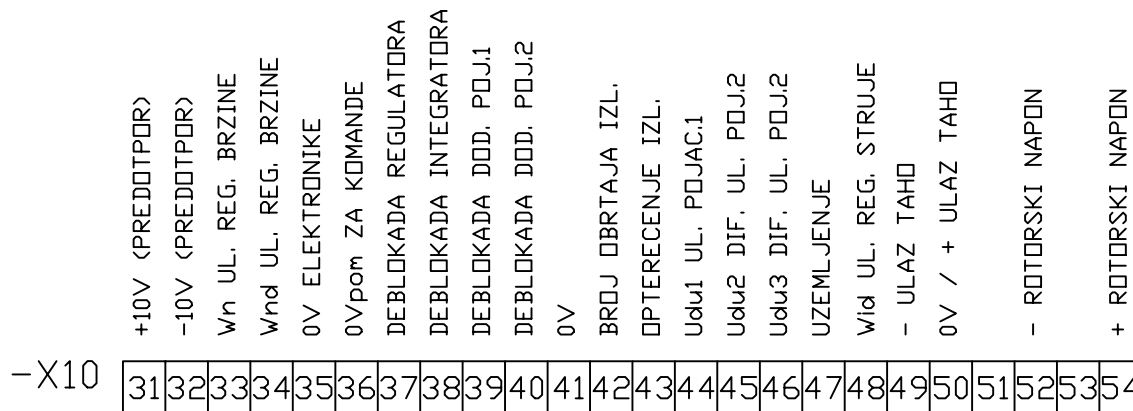
TIROSTORSKI REGULISANI ISPRAVLJAC

TRI - ADAPTREG

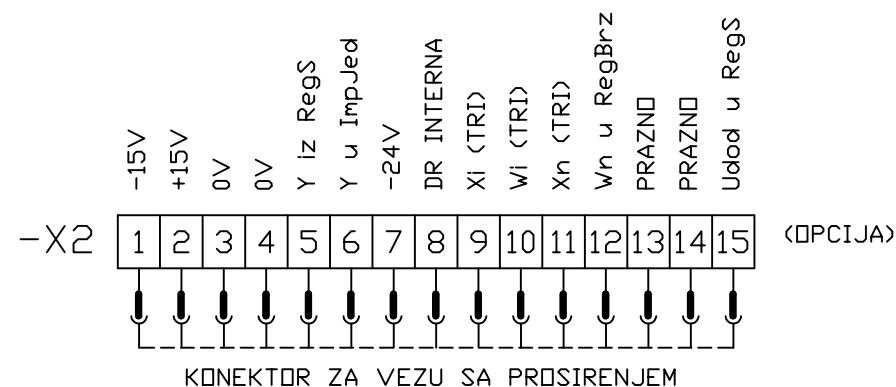
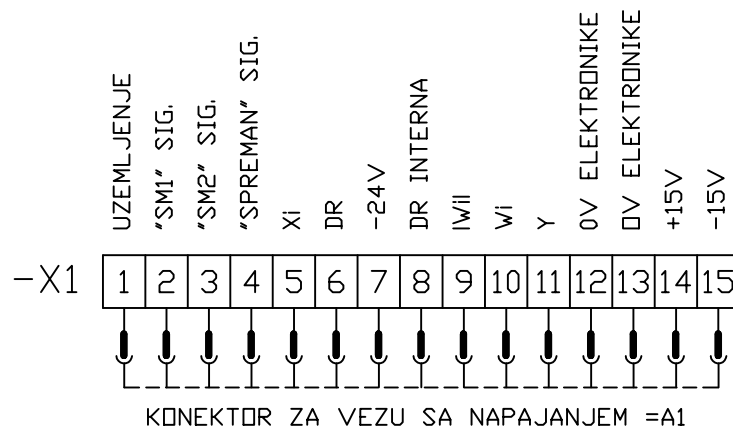
=A2
+TRI

List 1
7 Listova

PRIKLJUCNE STEZALJKE



PRIKLJUCNE STEZALJKE



FUNKCIJE POTENCIOMETARA

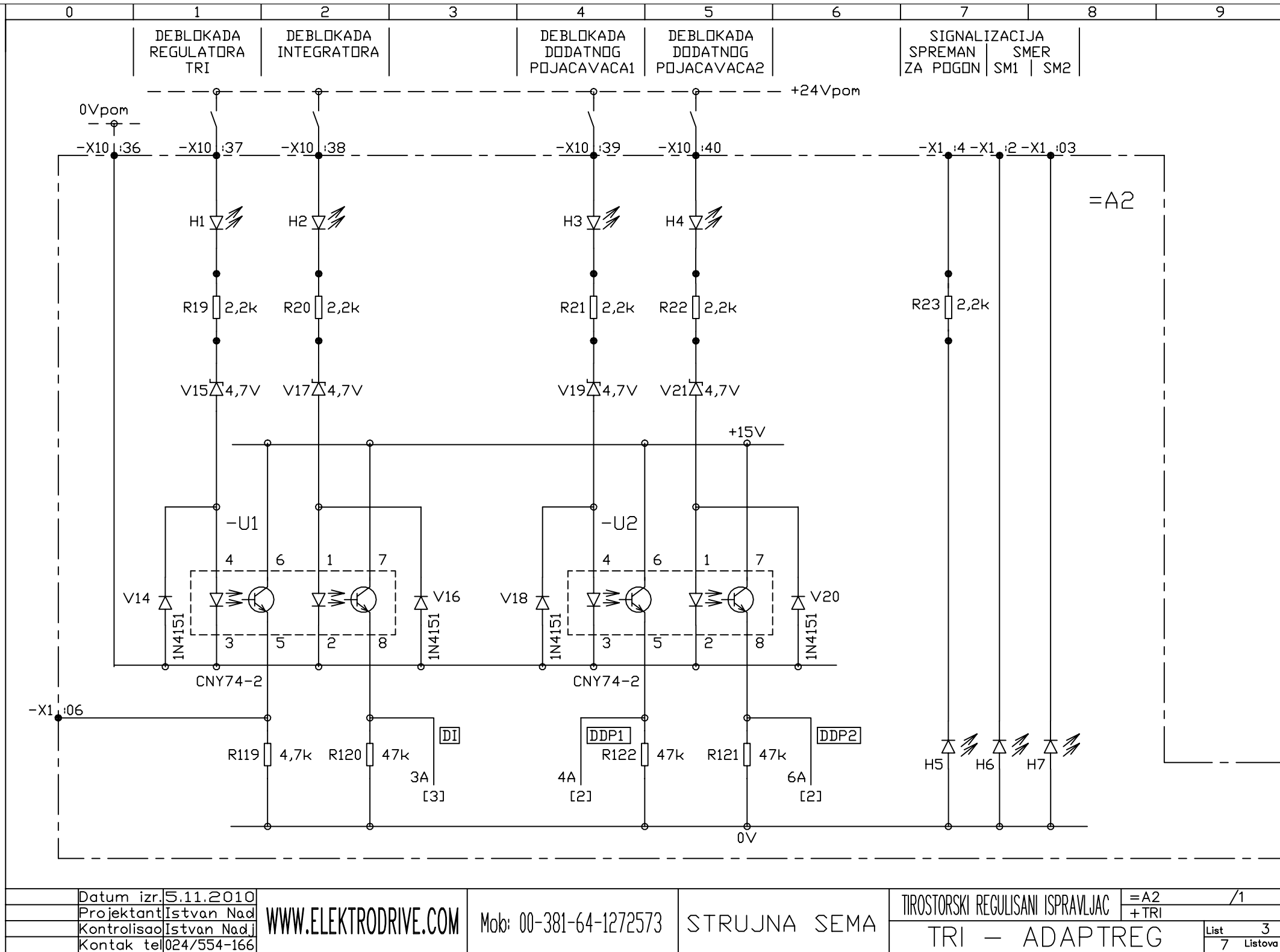
R1	STRUJNA GRANICA
R2	POJACANJE REGULATORA BRZINE
R3	I*R KOMPENZACIJA
R4	PODESAVANJE BROJA OBRTAJA
R5	POJACANJE MERACA BROJA OBRTAJA
R6	DRIFT REGULATORA BRZINE

R7	VREME RAMPE
R8	GRANICA PREKIDNE STRUJE
R9	P-CLAN U KONTINUALNOM REZIMU
R10	I-CLAN U PREKIDNOM REZIMU
R11	GRANICA NAPONA
R12	POJACANJE MERACA OPTERECEENJA



FUNKCIJE "LED" DIODA

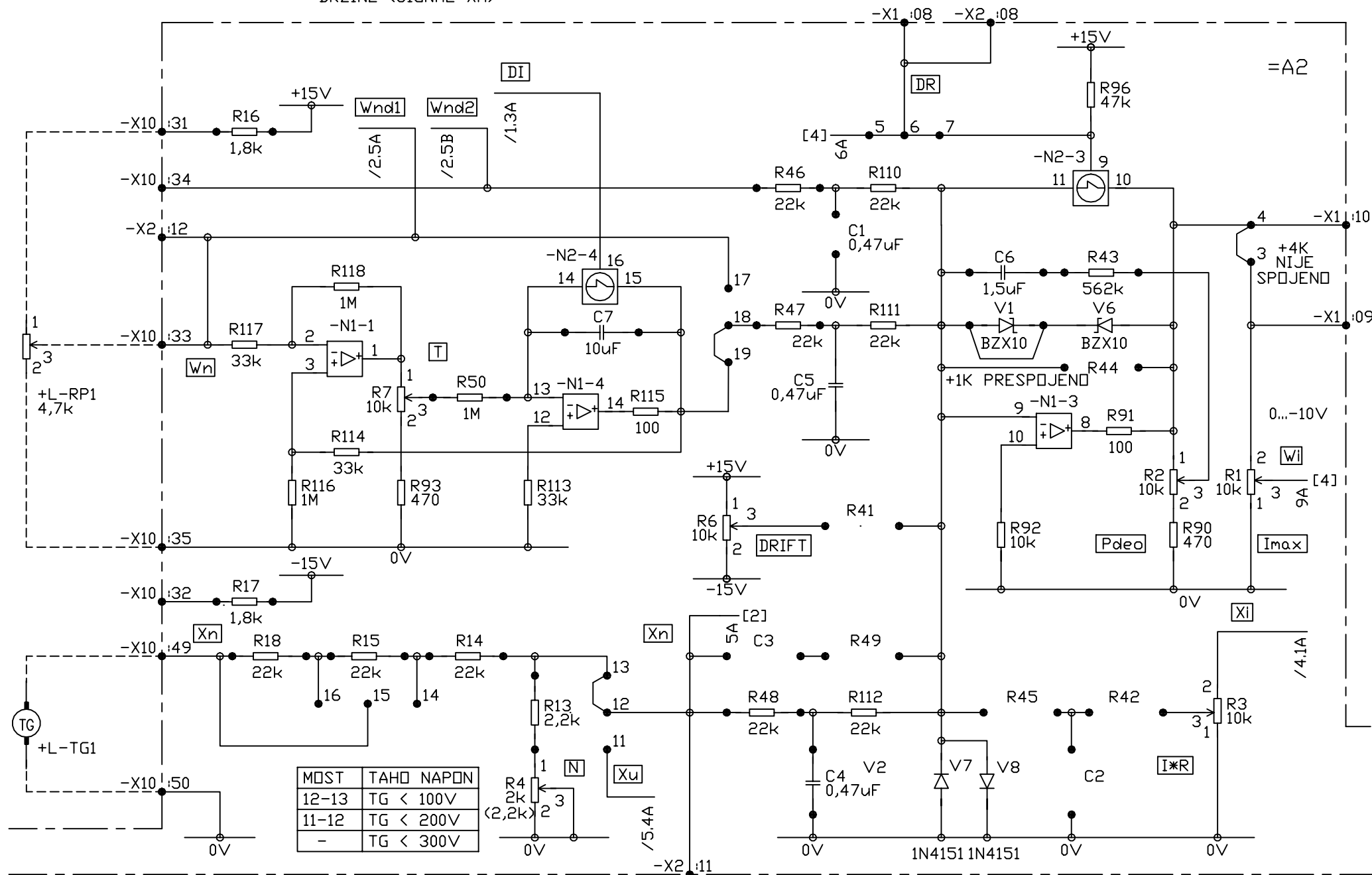
H1	DEBLOKADA REGULATORA
H2	DEBLOKADA INTEGRATORA
H3	DEBLOKADA DODATNOG POJACAVACA1
H4	DEBLOKADA DODATNOG POJACAVACA2
H5	DOJAVA SPREMNOSTI ZA POGON
H6	SMER OKRETANJA 1
H7	SMER OKRETANJA 2



INTEGRATOR ZADATE VREDNOSTI
PRILAGODJENJE STVARNE VREDNOSTI
BRZINE (SIGNAL Xn)

R E G U L A T O R I

REGULATOR BRZINE
I*R KOMPENZACIJA



Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
Kontakt tel 024/554-166

WWW.ELEKTRODRIVE.COM

Mob: 00-381-64-1272573

STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

TRI - ADAPTREG

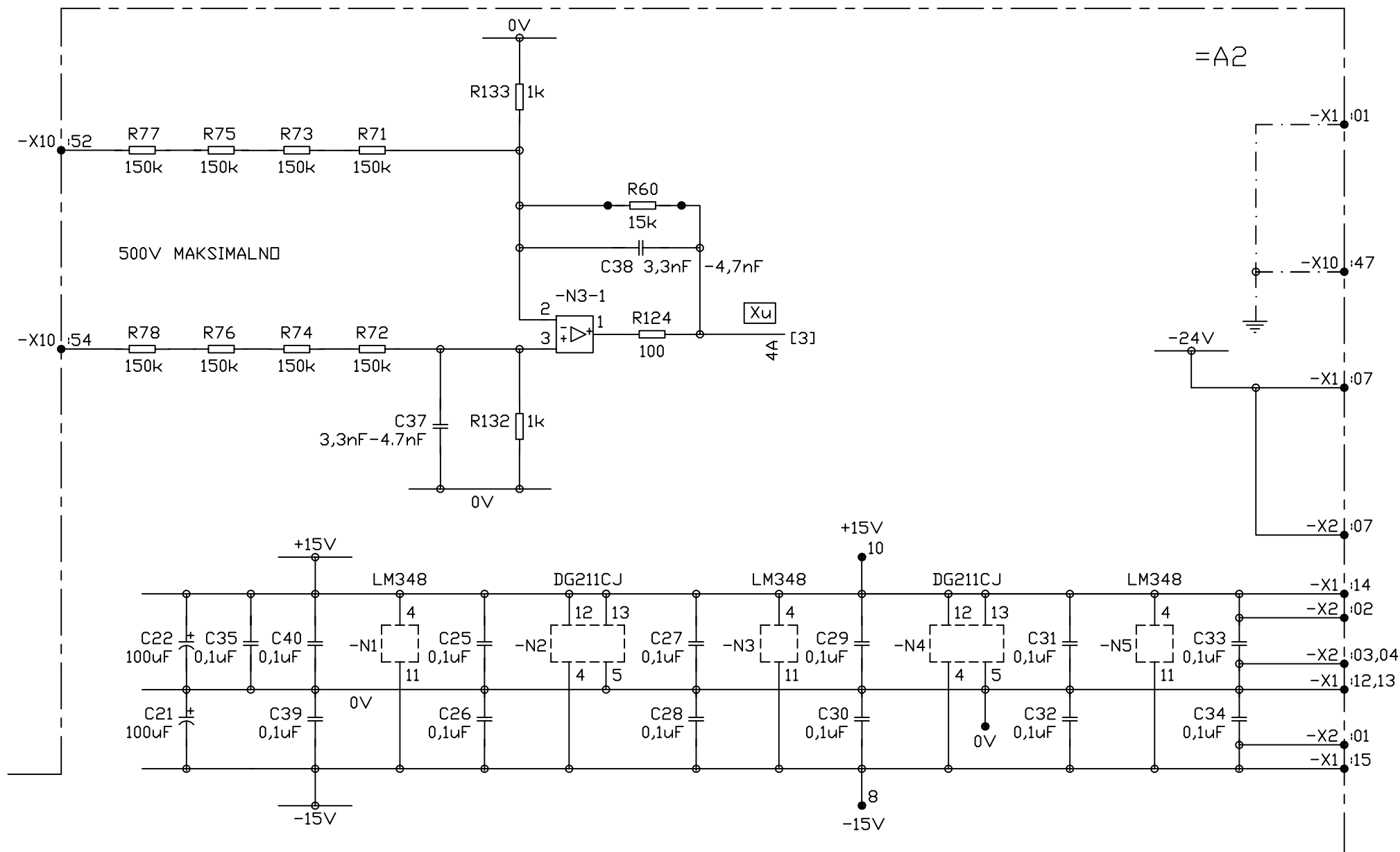
=A2 /3

+TRI

List 5
7 Listova

MERENJE STVARNE VREDNOSTI
ROTORSKOG NAPONA (SIGNAL Xu)

NAPAJANJE INTEGRISANIH KOLA
NAPONOM +15V I -15V DC



Datum izr. 5.11.2010
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STRUJNA SEMA

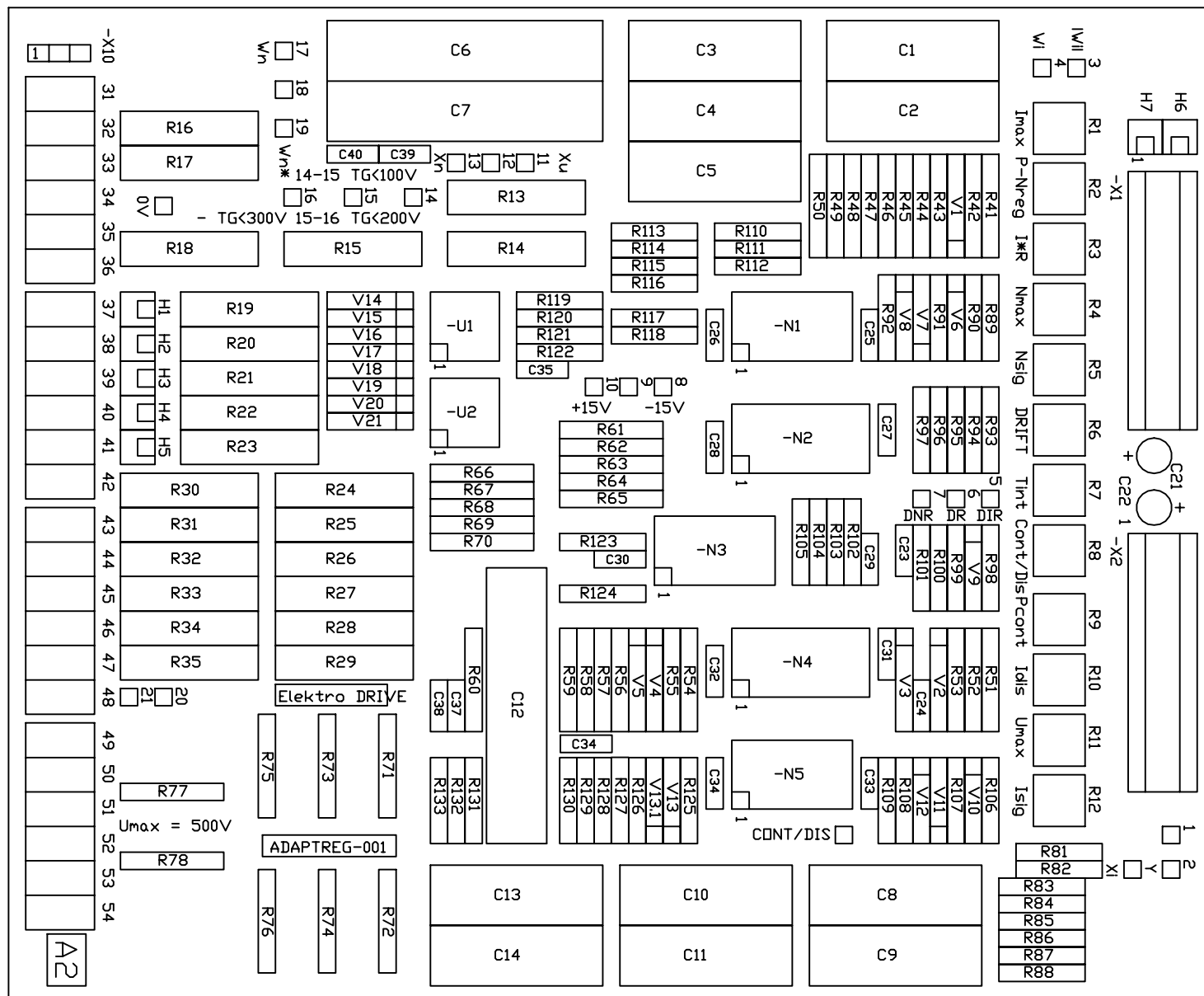
TIROSTORSKI REGULISANI ISPRAVLJAC

TRI - ADAPTREG

=A2 /5

+TRI

List 7
7 Listova



7,00 inch = 177,80 mm

5,75 inch = 146,05 mm

Datum izr. 5.11.2010
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RASPORED ELEMENATA

TIROSTORSKI REGULISANI ISPRAVLJAC

TRI - ADAPTREG

=A2
+ TRI

List 1
1 Listova

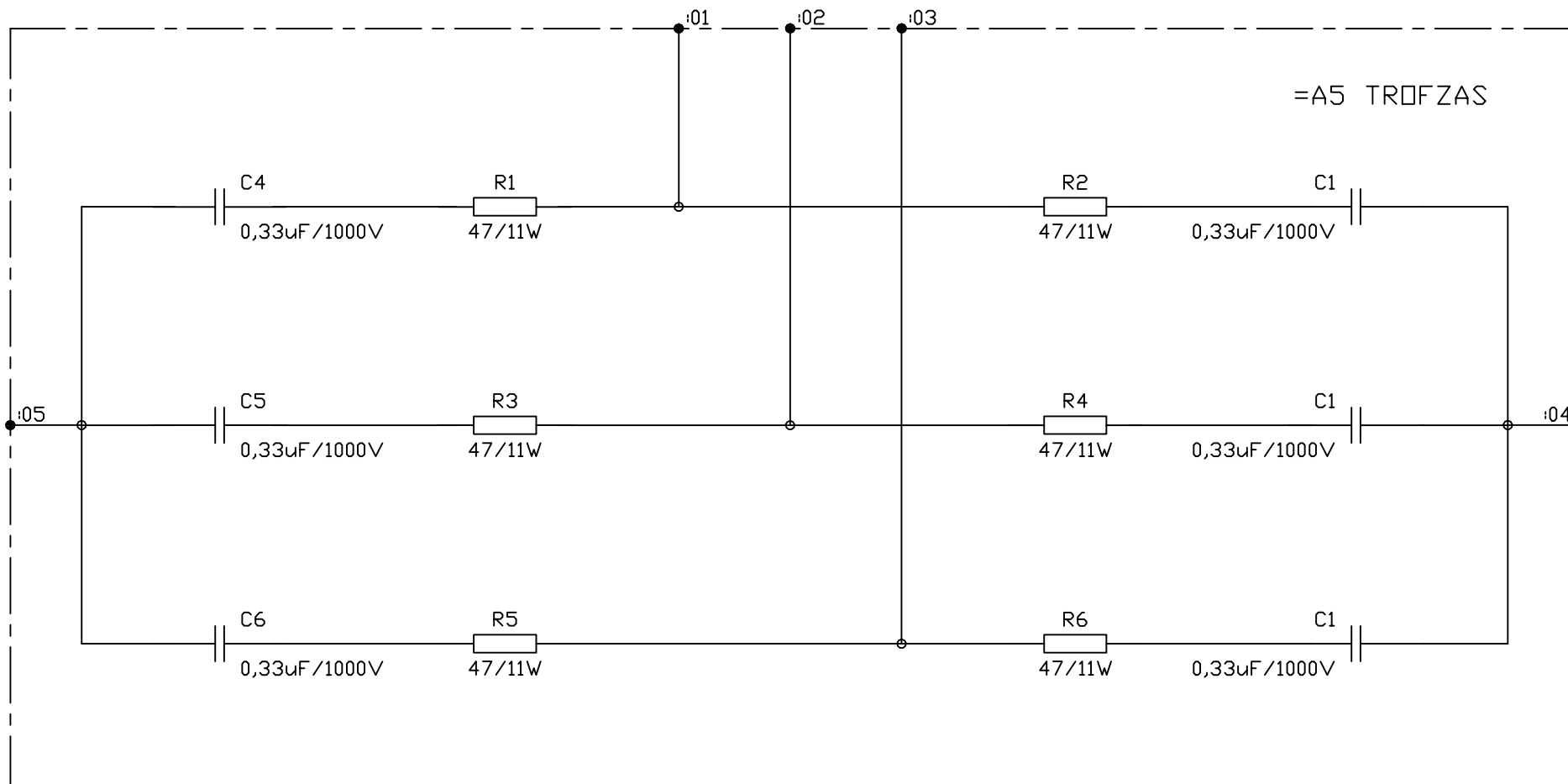
SPECIFIKACIJA MATERIJALA : ŠTAMPANA PLOČA "ADAPTREG"

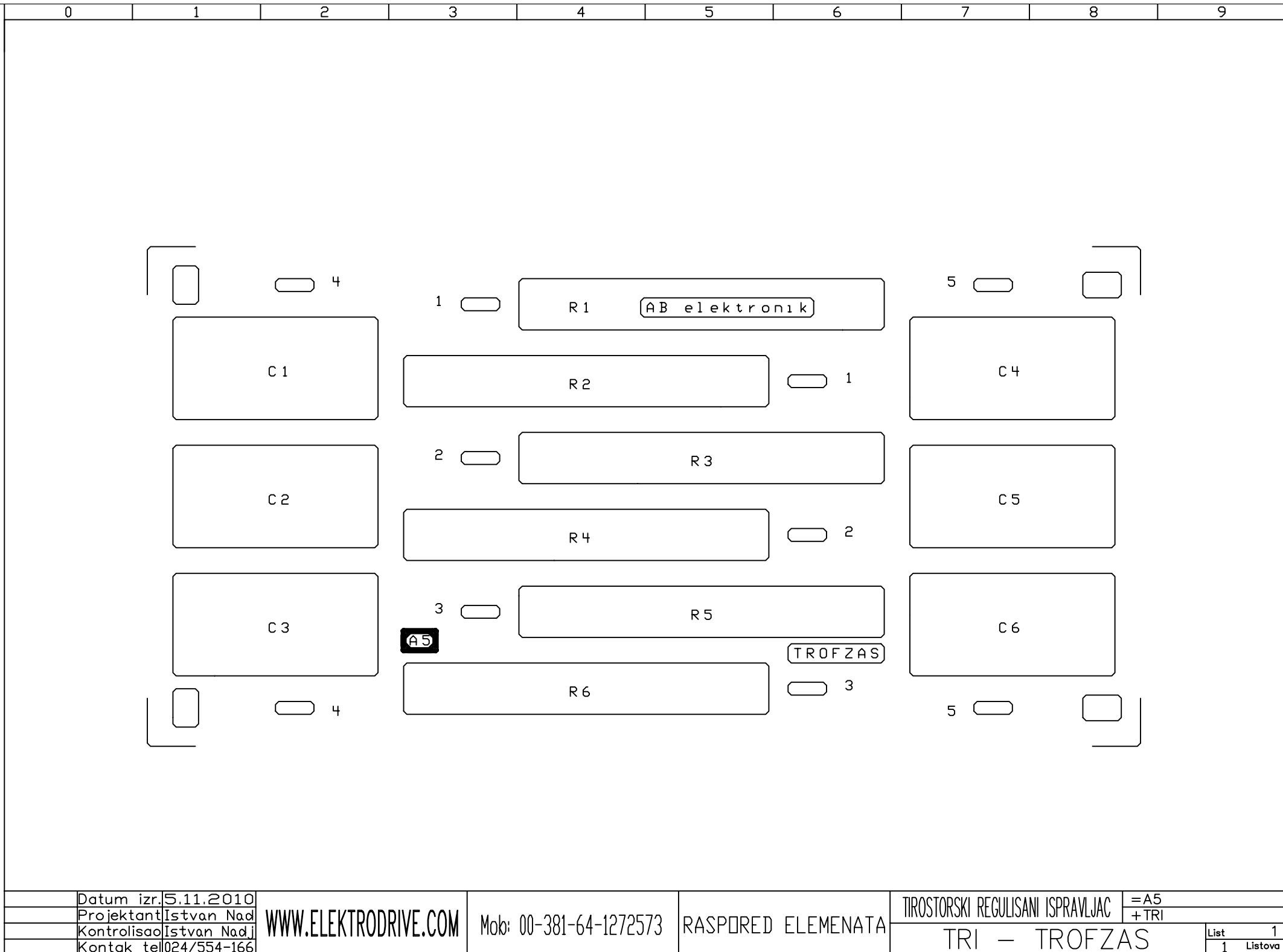
OZNAKA	TIP ELEMENTA	Kom.
U1, U2	PODNOZJE M/PK1/M DIL8	2
N1, N3, N5	PODNOZJE M/PK1/M DIL14	3
N2, N4	PODNOZJE M/PK1/M DIL16	2
C21, C22	C/EL EKO 10uF/20%/50V/5,5*12,5mm	2
C8, C9, C11	C/MKT 1813 0,22uF/10%/100V/6,0*14mm	3
C1, C4, C5	C/MKT 1813 0,47uF/10%/100V/6,5*19mm	3
C12	C/MKT 1813 1,0uF/10%/100V/8,5*19mm	1
C6	C/MKT 1813 1,5uF/10%/100V/8,0*26,5mm	1
C7	C/MKT 1813 10uF/10%/100V/16,5*31,5mm	1
C23	C/MKT B32520 0,01uF/10%/63V/RM5mm	2
C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C39, C40	C/MKT B32520 0,10uF/10%/63V/RM5mm	13
C36	C/MKT B32520 0,22uF/10%/63V/RM5mm	1
C24	C/MKT B32520 47nF/10%/63V/RM5mm	1
C37, C38	C/K CK05 3300pF/10%/100V/RM5,08mm	2
R35	R/SMA 0414 470R/5%/1,0W/70C/12*4,1mm	1
R16, R17	R/SMA 0414 1K8/5%/1,0W/70C/12*4,1mm	2
R13, R19, R20, R21, R22, R23	R/SMA 0414 2K2/5%/1,0W/70C/12*4,1mm	6
R14, R15, R18	R/SMA 0414 22K/5%/1,0W/70C/12*4,1mm	3
R91, R105, R108, R115, R123, R124, R125, R129	R/SMA 0207 100R/1%/0,6W/70C/6,5*2,5mm	8
R90, R93	R/SMA 0207 475R/1%/0,6W/70C/6,5*2,5mm	2
R82, R132, R133	R/SMA 0207 1K00/1%/0,6W/70C/6,5*2,5mm	3
R81, R89, R131	R/SMA 0207 2K21/1%/0,6W/70C/6,5*2,5mm	3
R30, R31, R119	R/SMA 0207 4K75/1%/0,6W/70C/6,5*2,5mm	3
R29, R62	R/SMA 0207 5K62/1%/0,6W/70C/6,5*2,5mm	2
R55, R92, R99, R100, R101, R107, R109, R127, R128, R130	R/SMA 0207 10K0/1%/0,6W/70C/6,5*2,5mm	10
R53, R60	R/SMA 0207 15K0/1%/0,6W/70C/6,5*2,5mm	2
R25, R26, R65, R70	R/SMA 0207 20K0/1%/0,6W/70C/6,5*2,5mm	4
R46, R47, R48, R54, R110, R111, R112	R/SMA 0207 22K1/1%/0,6W/70C/6,5*2,5mm	7
R113, R114, R117	R/SMA 0207 33K2/1%/0,6W/70C/6,5*2,5mm	3
R94, R96, R97, R98, R102, R103, R120, R121, R122	R/SMA 0207 47K5/1%/0,6W/70C/6,5*2,5mm	9
R83, R84, R85, R86, R87, R88	R/SMA 0207	6

SPECIFIKACIJA MATERIJALA : ŠTAMPANA PLOČA "ADAPTREG"

	68K1/1%/0,6W/70C/6,5*2,5mm	
R52, R106	R/SMA 0207 100K/1%/0,6W/70C/6,5*2,5mm	2
R71, R72, R73, R74, R75, R76, R77, R78	R/SMA 0207 150K/1%/0,6W/70C/6,5*2,5mm	8
R51	R/SMA 0207 200K/1%/0,6W/70C/6,5*2,5mm	1
R43	R/SMA 0207 562K/1%/0,6W/70C/6,5*2,5mm	1
R50	R/SMA 0207 1M00/1%/0,6W/70C/6,5*2,5mm	1
R4	P/SL CT6P 2K0/10%/0,5W/70C/LIN	1
R1, R2, R3, R5, R6, R7, R8, R9, R10, R11, R12	P/SL CT6P 10K/10%/0,5W/70C/LIN	11
X1, X2	UTIK. 2,5MSF/15pol	2
X10	STEZ. Kre/6POLIG/1,5qmm/250V/RM=5mm	4
X: Lemne usice	LEM. USI. Typ60-1399- 14/11*1mm/1pak=100kom	168
V13	DIODA BAT48 0,2A/40VR/DO35	1
V15, V17, V19, V21	Z-DIODA BZX79/C4V7 4,7V/500mW/DO35	4
V1, V2, V3, V4, V5, V6, V13.1	Z-DIODA BZX79/C10 10V/500mW/DO35	7
V7, V8, V9, V10, V11, V12, V14, V16, V18, V20	DIODA 1N4148 0,2A/75VR/DO35	10
N2, N4	IC's DG211CJ	2
N1, N3, N5	IC's LM348N (LM248N ili LM148J)*	3
U1, U2	OPT. CNY74-2	2
H1, H2, H3, H4, H5, H6, H7	LED-DIODA 3mm/GRUN.	7
X: ŠTAMPANA PLOČA	ŠTAMPANA PLOČA "ADAPTREG V001" - A2	1

* Izmene za nestandardnu izvedbu sa proširenim temperaturnim opsegom rada.





SPECIFIKACIJA MATERIJALA : STAMPANA PLOCA "TROFZAS"

OZNAKA	TIP ELEMENTA	Kom.
C1, C2, C3, C4, C5, C6	C/MKT MKP10 0,33uF/20%/1000V/RM37,5mm	6
R1, R2, R3, R4, R5, R6	R GLD11 47R/10%/11,0W/300C/12,5*50mm	6
X: 1, 2, 3 4, 5	SPOJ. JEZ. 123.014.12523/6,3*0,8mm/1p=10	5
X: 1,2,3,4,5 (za zicu)	NAT. SPOJ. 35032/6,3*0,8mm/BLAU/1p=10k	5
X: 1, 2, 3, 4,5 (Zica kraj za tiristore)	KAB. STOP. 630-5/1,5-2,5qmm/1pak=10kom, BLAU	5
ZICANA VEZA	VODIC FEP-Lg/1,5qmm/SCHWARZ	1
X: STAMPANA PLOCA	STAMPANA PLOCA "TROFZAS" -A5	1

TIRISTORSKI REGULATOR POBUDE – TRP

TIP	I [A]	PRIKLJUCNI NAPON	MREZNA PRIGUSNICA	ULTRABRZI OSIGURACI
TRP 220/180.2 – 10		1*220V 50/60Hz	1*MMP-17	1*16A/660V
TRP 220/180.2 – 15		1*220V 50/60Hz	1*MMP-17	1*25A/660V
TRP 220/180.2 – 25		1*220V 50/60Hz	1*MMP-25	1*35A/600V
TRP 380/310.2 – 10		1*380V 50/60Hz	2*MMP-17	2*16A/660V
TRP 380/310.2 – 15		1*380V 50/60Hz	2*MMP-17	2*25A/660V
TRP 380/310.2 – 25		1*380V 50/60Hz	2*MMP-25	2*35A/660V
TRP 380/310.2 – 36		1*380V 50/60Hz	2*MMP-35	2*50A/660V
TRP 380/310.2 – 50		1*380V 50/60Hz	2*MMP-55	2*63A/660V

LEGENDA ANALOGNIH SIGNALA

Ud ROTORSKI NAPON
 Wu ZADATA VREDNOST ROTORSKOG NAPONA
 Xu STVARNA VREDNOST ROTORSKOG NAPONA
 IXul ISPRAVLJENA STVARNA VREDNOST
 ROTORSKOG NAPONA
 Wi ZADATA VREDNOST STRUJE POBUDE
 Wimin MINIMALNA STRUJA POBUDE
 Xi STVARNA VREDNOST STRUJE POBUDE
 Y UGAO VODJENJA

LEGENDA BINARNIH SIGNALA

BR BLOKADA REGULATORA
 BLI BLOKADA IMPULSA

GABARITNE MERE

TRP 220-380/ ... 10-25
 Visina*Sirina*Dubina = 210*198*150
 Masa = 2,2 kg
 TRP 380/ ... 36-50
 Visina*Sirina*Dubina = 260*198*150
 Masa = 3,7 kg

FUNKCIONALNE CELINE

=A1 REGPOB-002 UPRAVLJACKA ELEKTRONIKA
 +TRP KOMPLETAN UREDJAJ

Datum izr. 5.11.2010
 Projektant Istvan Nad
 Kontrolisao Istvan Nad
 Kontak tel 024/554-166

WWW.ELEKTRODRIVE.COM

Mob: 00-381-64-1272573

STRUJNA SEMA

TIRISTORSKI REGULISANI ISPRAVLJAC

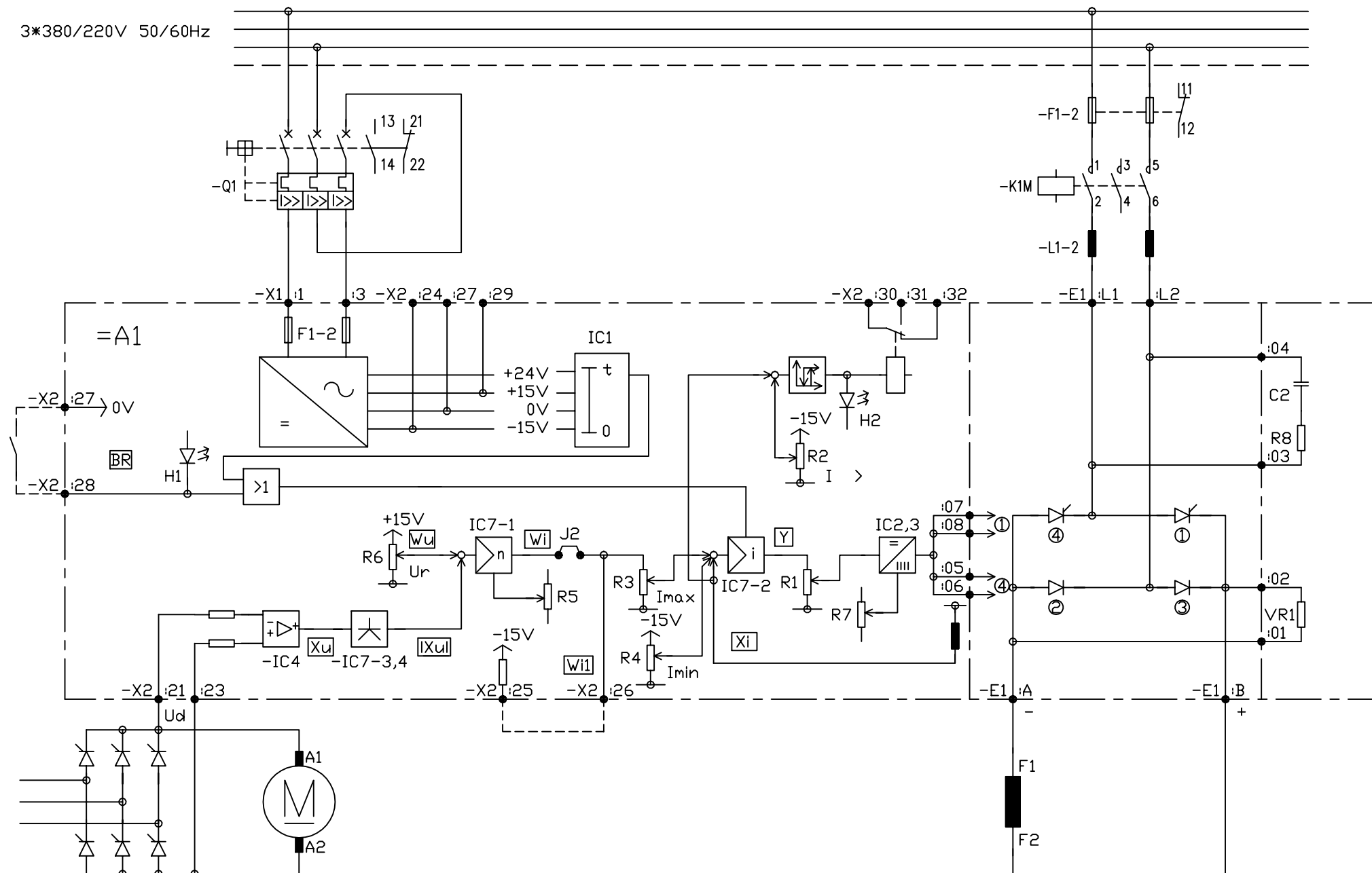
+ TRP

TRP – REGPOB V002

List 1
10 Listova

SEMA POVEZIVANJA REGULATORA POBUDE

3*380/220V 50/60Hz



Datum izr. 5.11.2010
 Projektant Istvan Nad
 Kontrolisao Istvan Nad
 Kontak tel 024/554-166

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STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

TRP – REGPOB V002

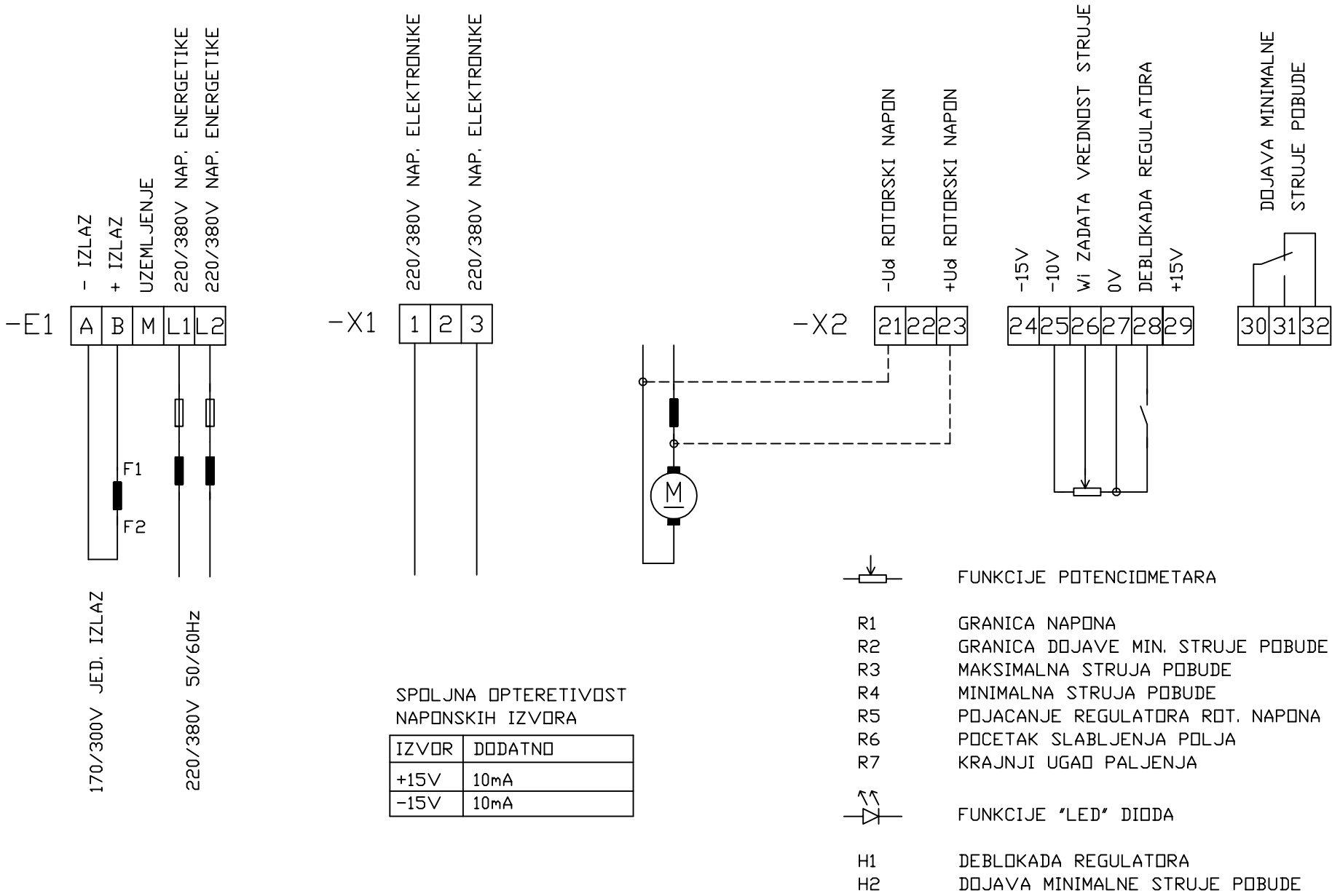
+ TRP

List 2
 10 Listova

ENERGETSKI PRIKLJUCAK

NAPAJANJE

UPRAVLJACKI PRIKLJUCAK



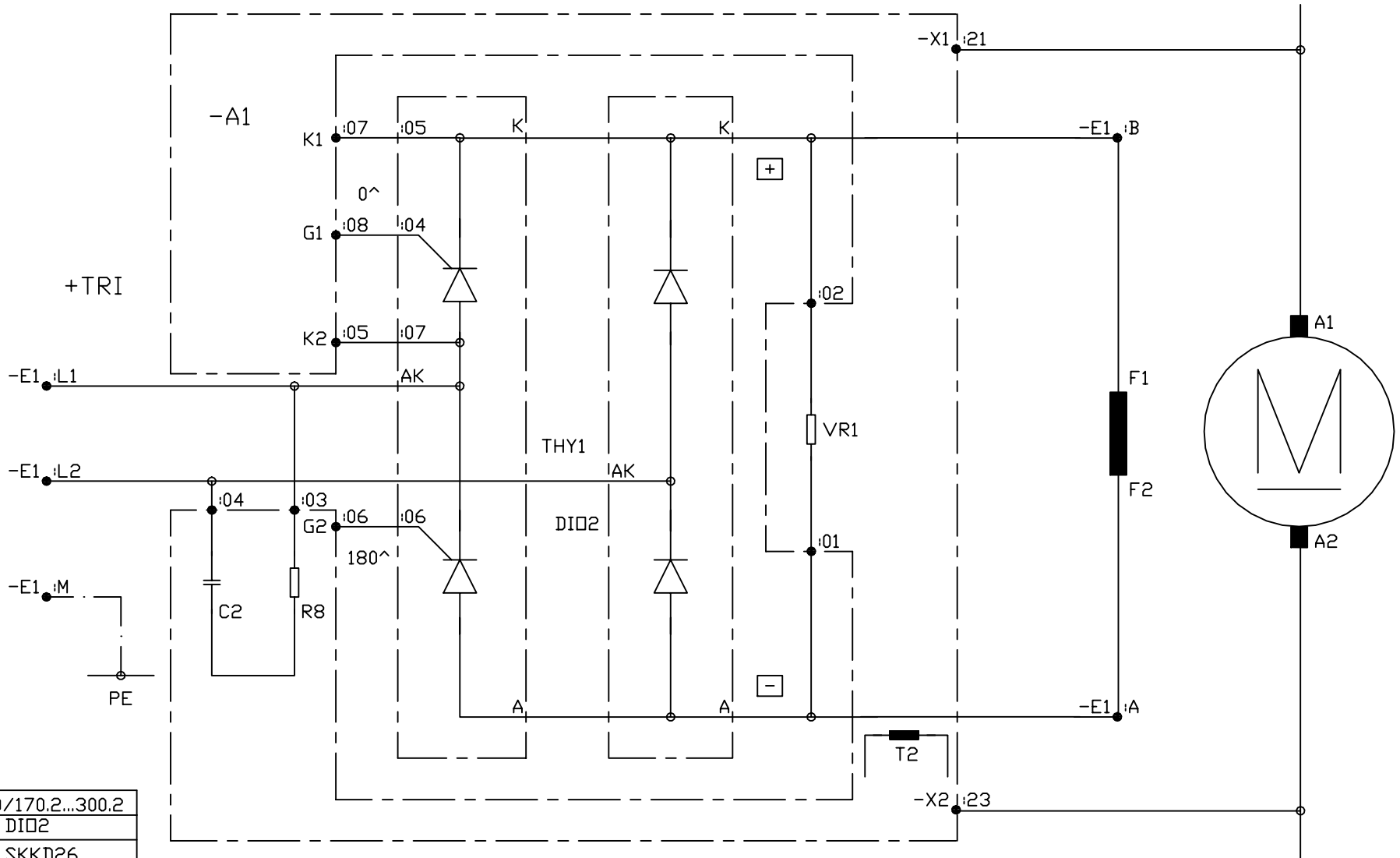
ENERGETSKI DEO

ULAZ

PRENAPONSKA ZASTITA

MERENJE STRUJE
PRENAPONSKA ZASTITA

IZLAZ



In	TRI 220...380/170.2...300.2	
[A]	THY1	DIO2
10	SKKT19	SKKD26
15	SKKT19	SKKD26
25	SKKT19	SKKD26
36	SKKT41	SKKD46
50	SKKT56	SKKD81

ULAZ	IZLAZ
1*220V 50/60Hz	180Vdc
1*380V 50/60Hz	310Vdc

Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
Kontakt tel 024/554-166

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Mob: 00-381-64-1272573

STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

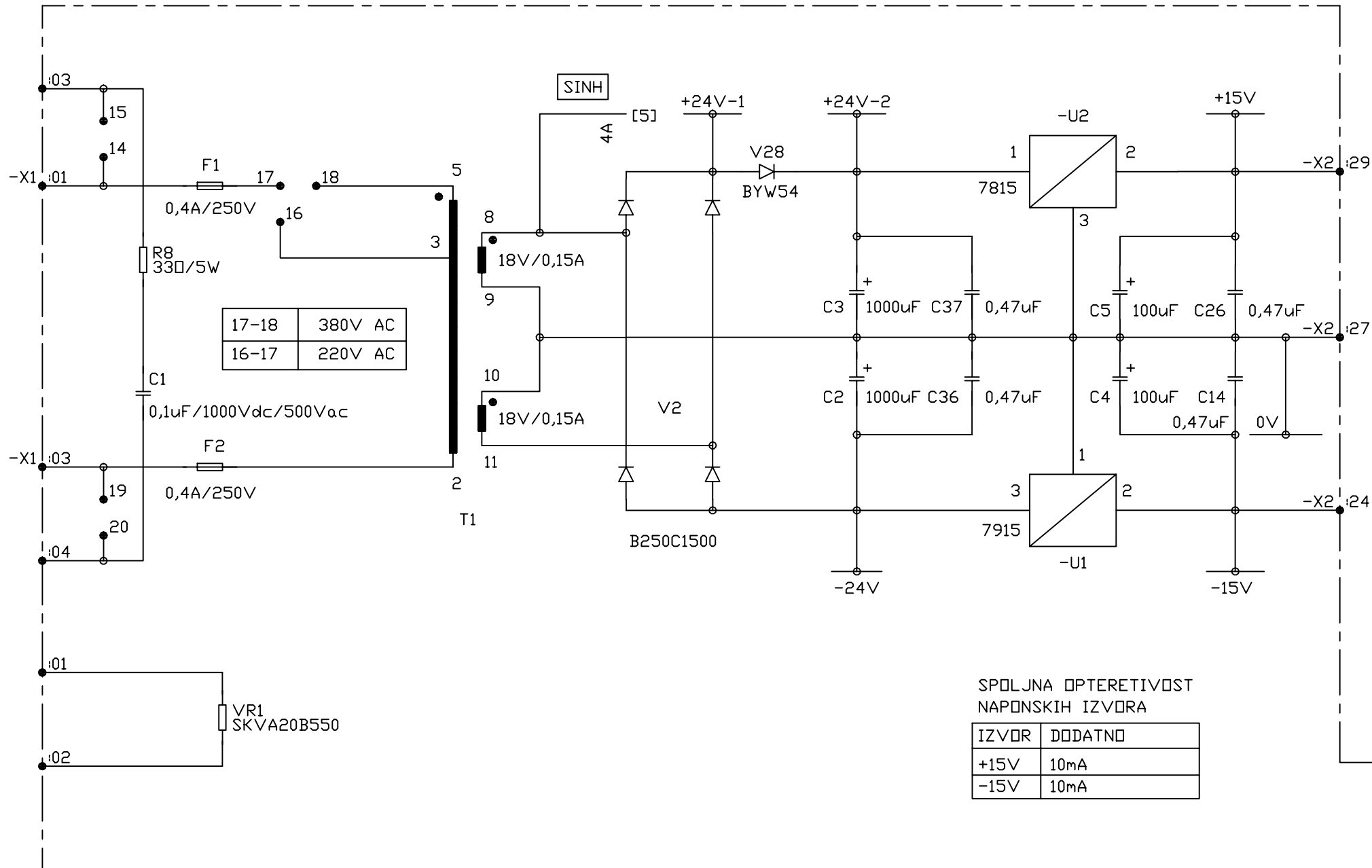
TRP – REGPOB V002

+ TRI

List 4
10 Listova

IZVOR POMOCNIH NAPONA

RC - ZASTITA
PRENAPONSKA ZASTITA



Datum izr. 5.11.2010
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Kontrolisao Istvan Nad
Kontakt tel 024/554-166

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STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

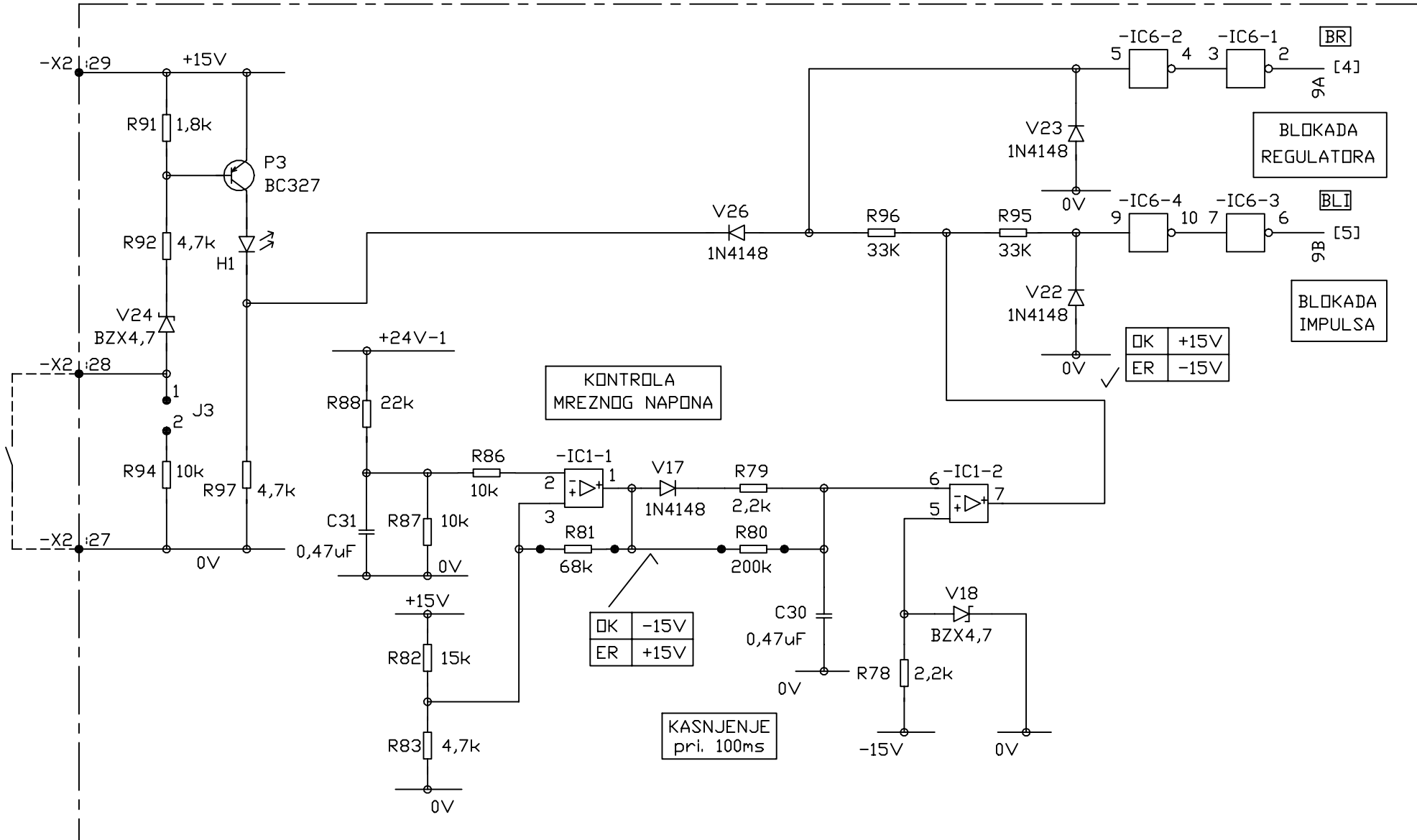
TRP - REGPOB V002

=A1
+TRP

List 5
10 Listova

DEBLOKADA
REGULATORA
TRP

DOJAVA SPREMNOSTI ZA POGON



Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
Kontakt tel 024/554-166

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Mob: 00-381-64-1272573

STRUJNA SEMA

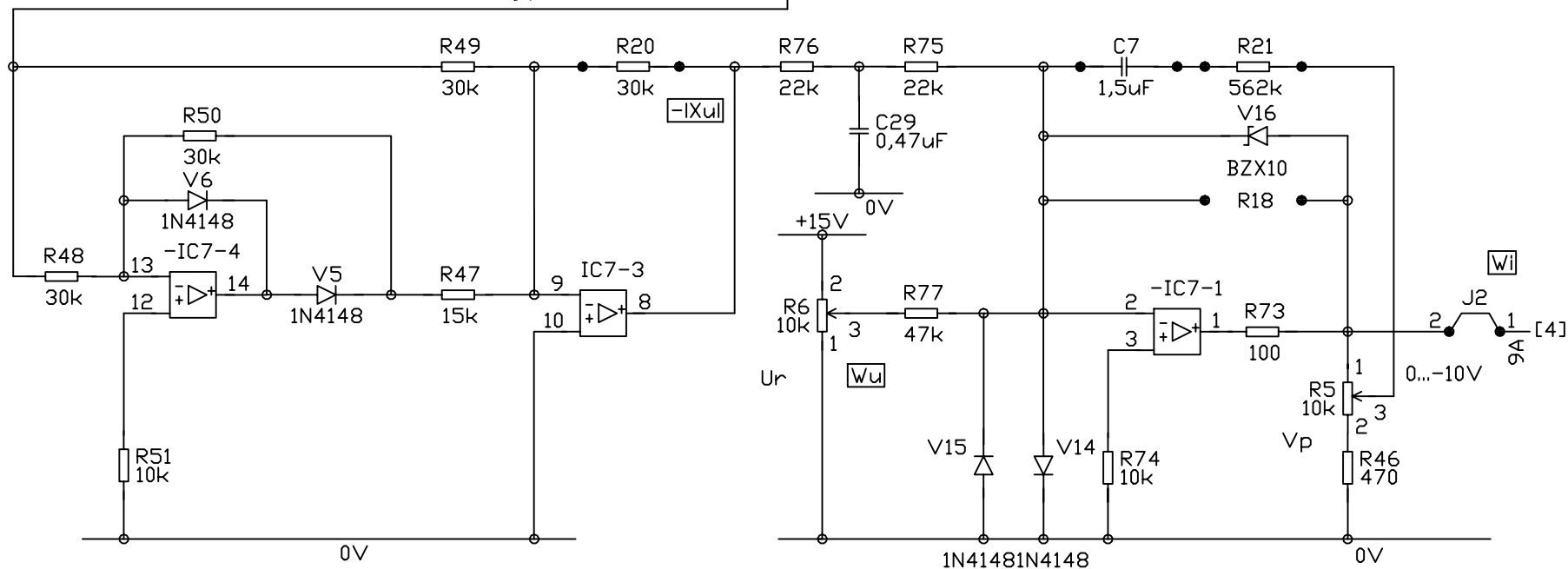
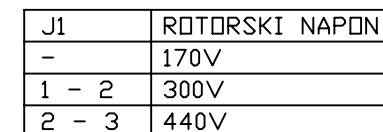
TIROSTORSKI REGULISANI ISPRAVLJAC

TRP – REGPOB V002

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+TRP

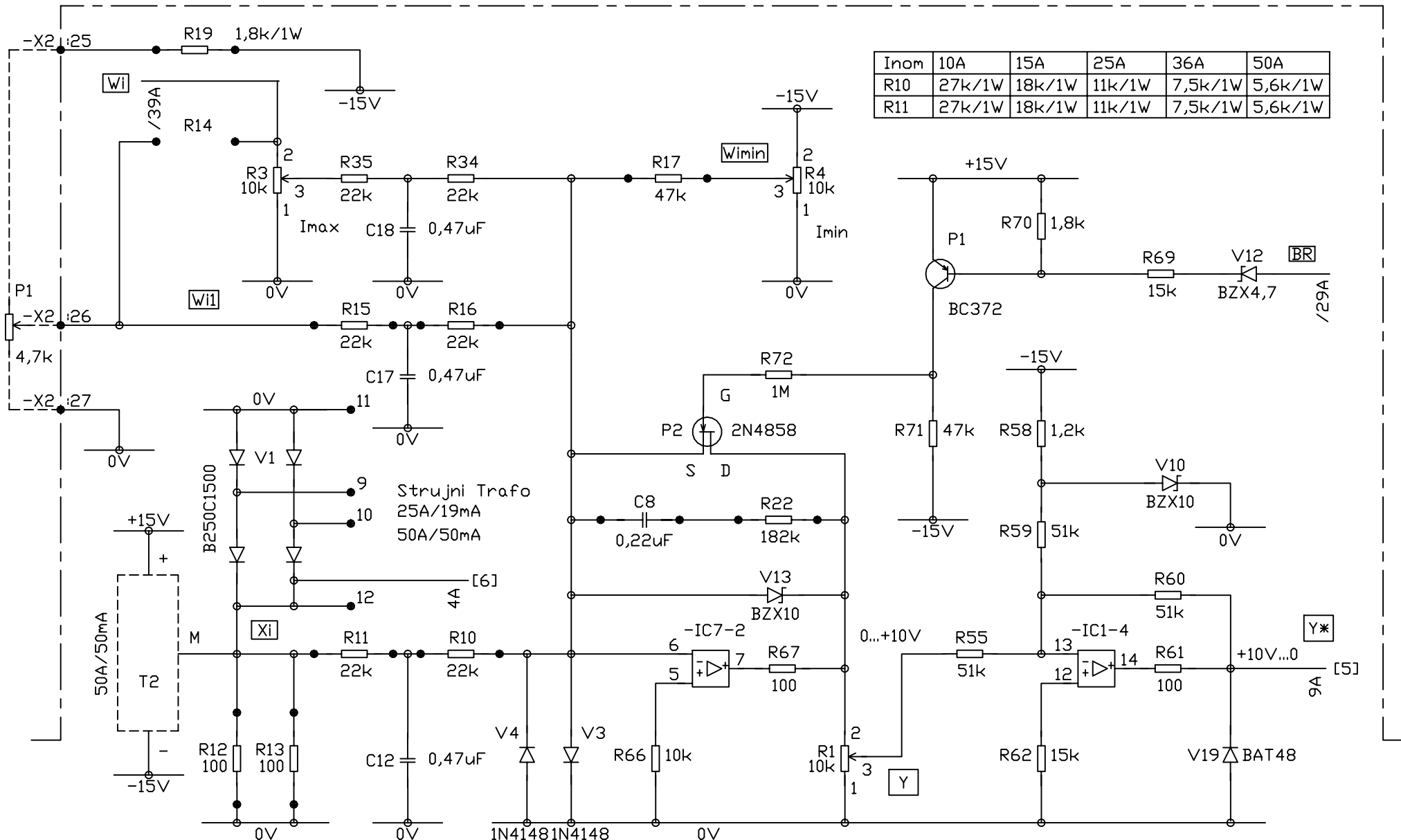
/2

List 6
10 Listova



MERENJE STVARNE VREDNOSTI STRUJE
(SIGNAL XI)

REGULATORI
REGULATOR STRUJE



Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
Kontakt tel 024/554-166

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Mob: 00-381-64-1272573

STRUJNA SEMA

TIROSTORSKI REGULISANI ISPRAVLJAC

TRP – REGPOB V002

=A1
+TRP

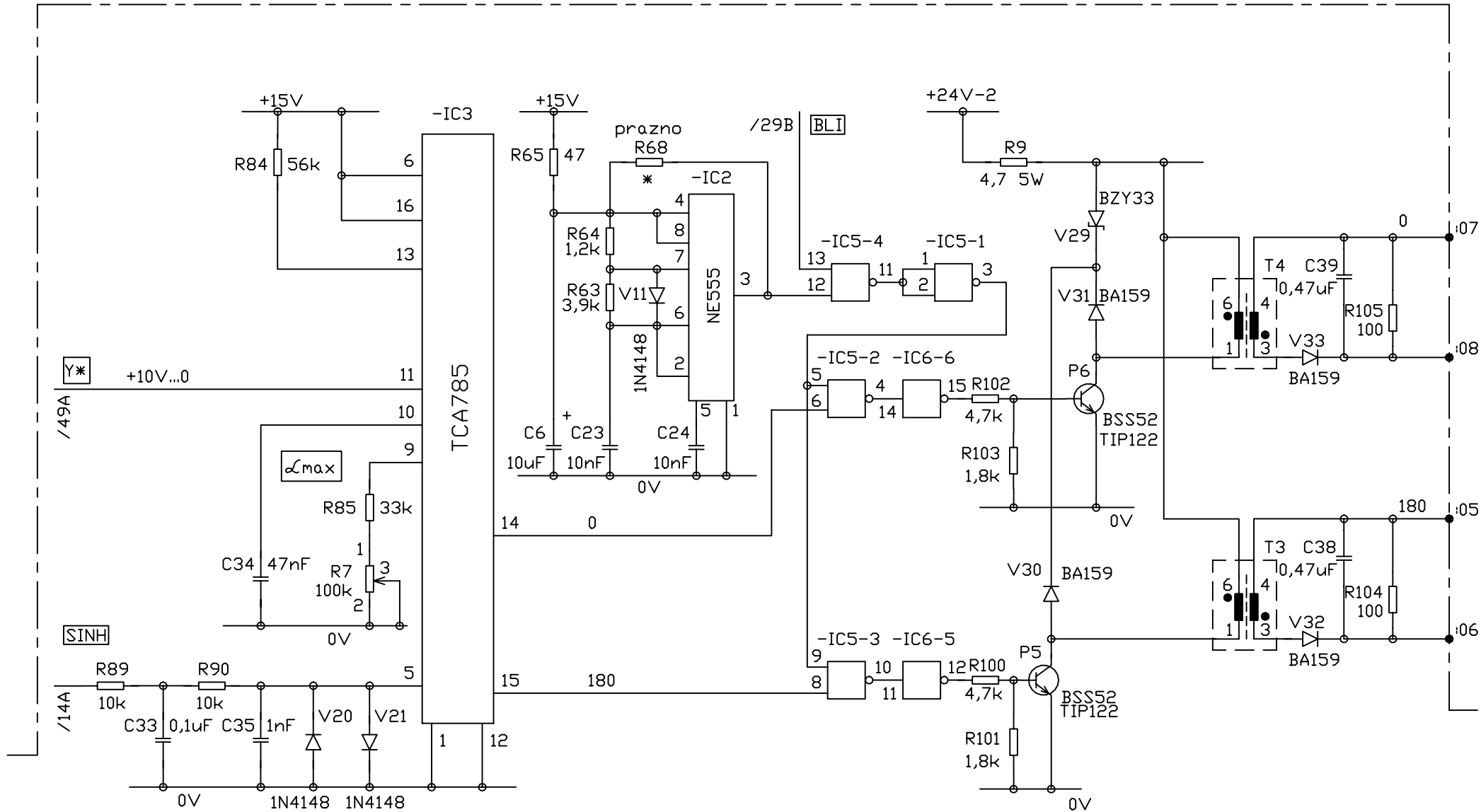
/4

List 8
10 Listova

GENERATOR IMPULSA

IMPULSNA JEDINICA
GENERATOR CESLJA

IMPULSNI TRANSFORMATORI



Datum izr. 5.11.2010
Projektant Istvan Nad
Kontrolisao Istvan Nad
Kontak tel 024/554-166

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Mob: 00-381-64-1272573

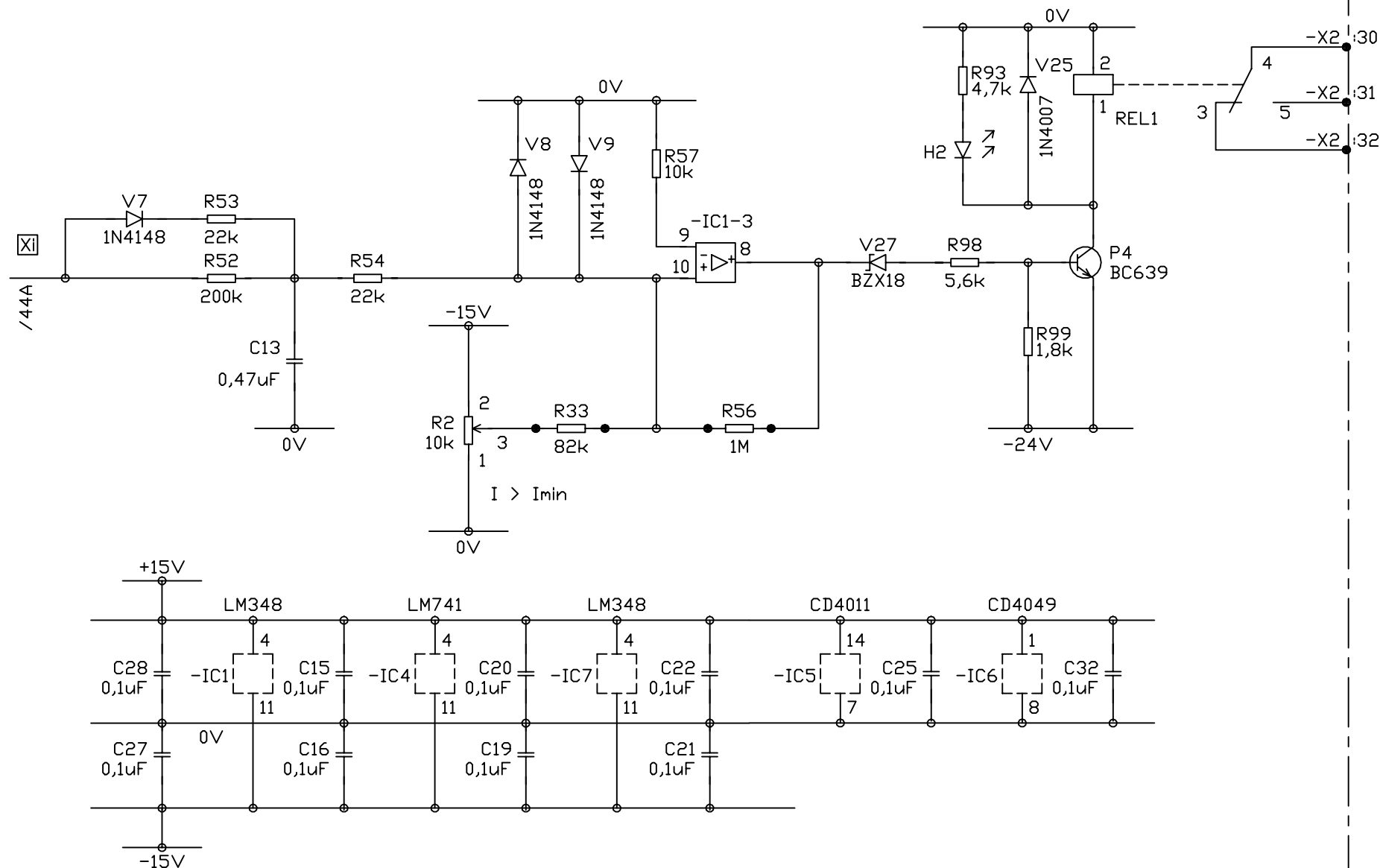
STRUJNA SEMA

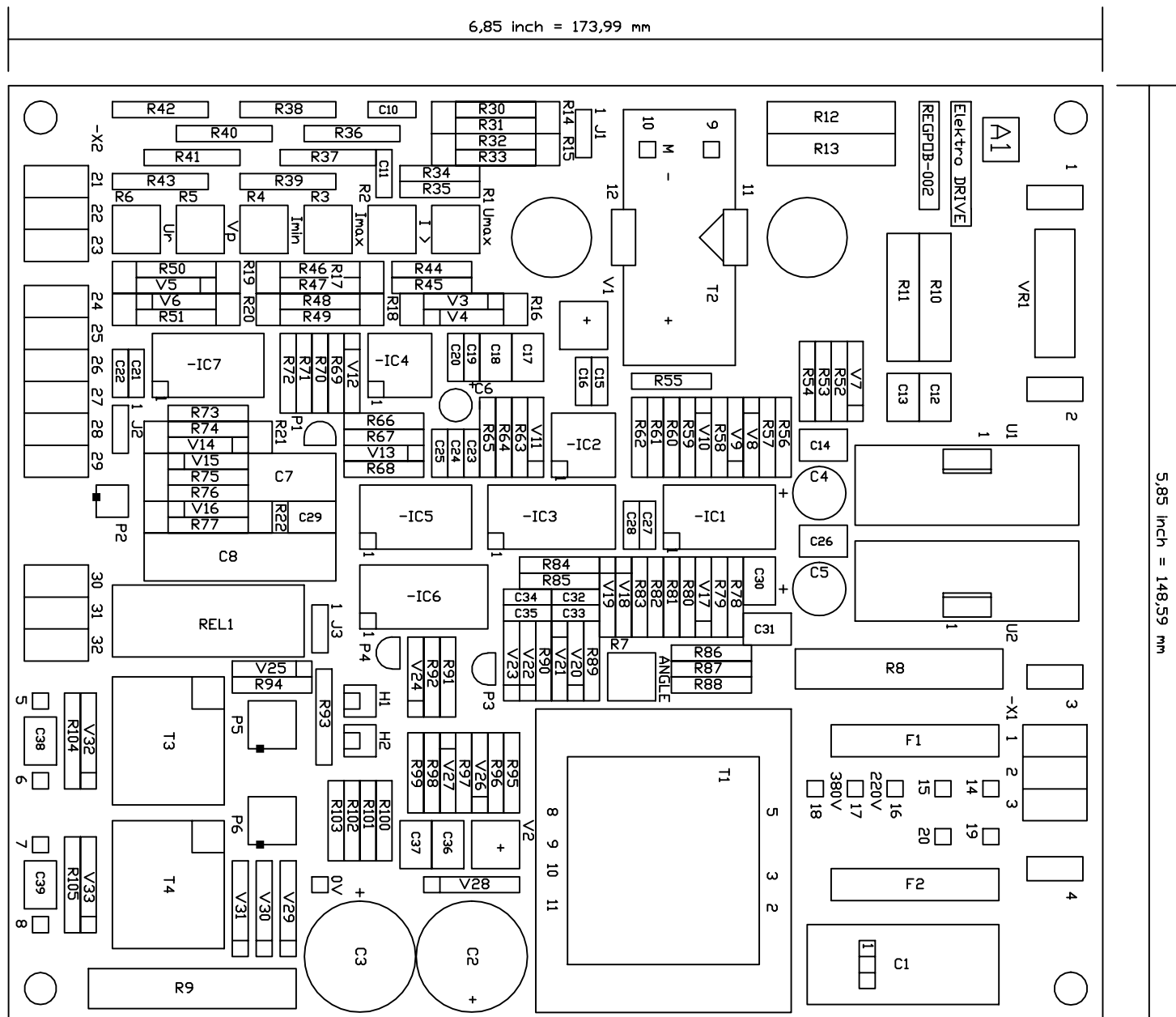
TIROSTORSKI REGULISANI ISPRAVLJAC

TRP – REGPOB V002

=A1 /5
+TRP

List 9
10 Listova





Datum izr. 5.11.2010
 Projektant Istvan Nad
 Kontrolisao Istvan Nad
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RASPORED ELEMENATA

TIROSTORSKI REGULISANI ISPRAVLJAC

TRP - REGPOB V002

=A1
 +TRP

List 1
 1 Listova

SPECIFIKACIJA MATERIJALA : STAMPANA PLOCA "REGPOB-002"

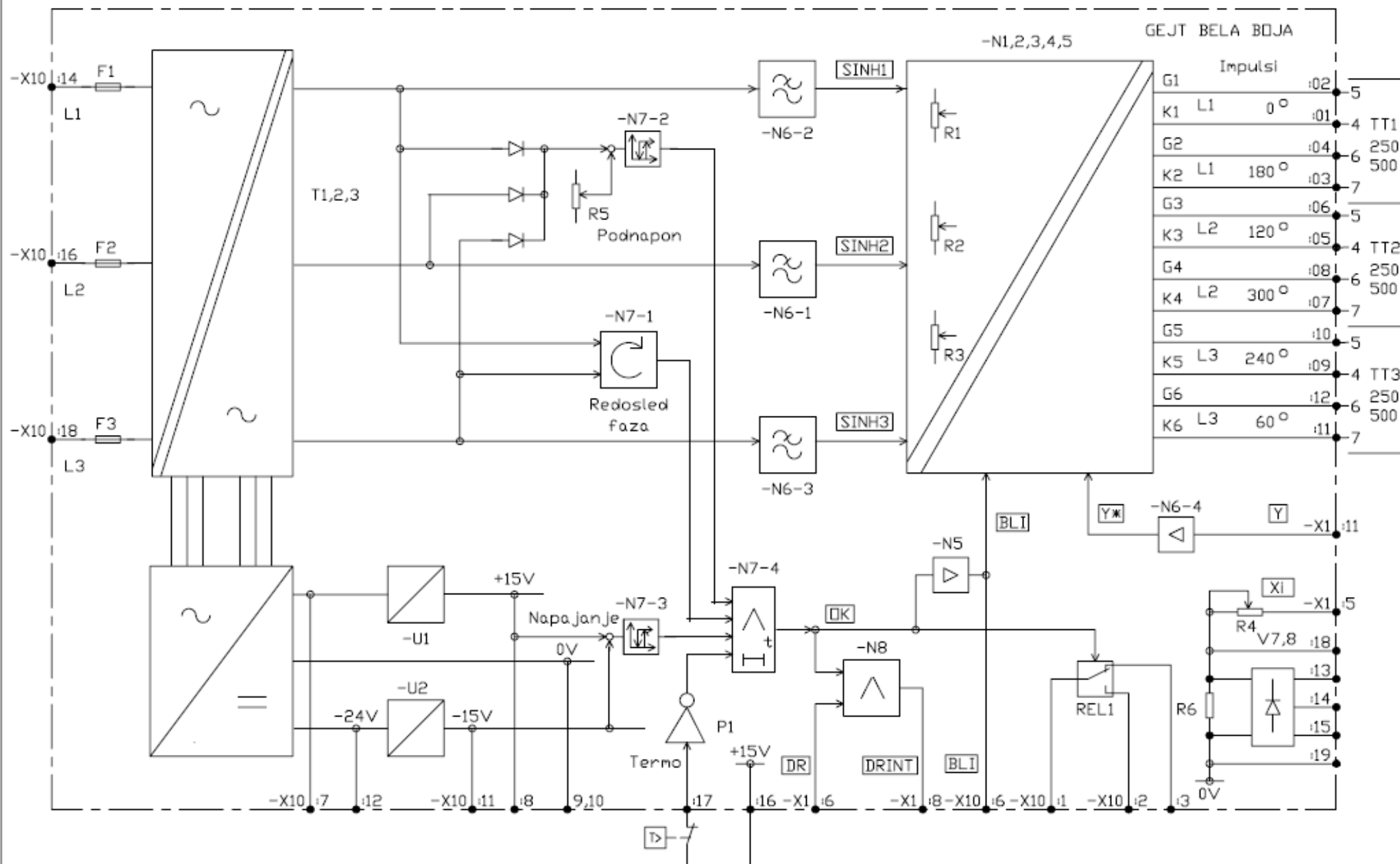
OZNAKA	TIP ELEMENTA	Kom.
T1	TRANSFORMATOR ZA NAPAJANJE EI48/21 380-220V/2x18V	1
V2, (V1-opcija)	ISPRAVLJAC B250C1500 B250V/225V/1,5A	1
IC2, IC4	PODNOZJE M/PK1/M DIL8	2
IC1, IC5, IC7	PODNOZJE M/PK1/M DIL14	3
IC3, IC6	PODNOZJE M/PK1/M DIL16	2
U1, U2	RASHLADNO TELO SK104/TO220/38,1mm/11K-W	2
C6	C/EL EKO 10uF/20%/50V/5,5*12,5mm, RM2,5mm	1
C4, C5	C/EL EKO 100uF/20%/50V/8,5*13,5mm, RM5mm	2
C2, C3	C/EL EKO 1000uF/20%/50V/16,5*26,5mm, RM7,5mm	2
C1	C/MKT MKP10 0,1uF/20%/1000V/500~RM27,5mm	1
C8	C/MKT 1813 0,22uF/10%/100V/6,0*14mm	1
C7	C/MKT 1813 1,5uF/10%/100V/8,0*26,5mm	1
C23,24	C/MKT B32520 0,01uF/10%/63V/RM5mm	2
C34	C/MKT B32520 0,047uF/10%/63V/RM5mm	1
C15,16,19,20,21,22,25,27,28,32,33	C/MKT B32520 0,10uF/10%/63V/RM5mm	11
C12,13,14,17,18,26,29,30,31,36,37,38, 39	C/MKT B32520 0,47uF/10%/63V/RM5mm	13
C10, 11	C/K CK05 3300pF/10%/100V/RM5,08mm	2
C35	C/K CK05 1000pF/10%/200V/RM5,08mm	1
R12,13	R/SMA 0414 100R/5%/1,0W/70C/12*4,1mm	2
R19	R/SMA 0414 1K8/5%/1,0W/70C/12*4,1mm	1
R65	R/SMA 0207 47R5/1%/0,6W/70C/6,5*2,5mm	1
R61,67,73,104,105	R/SMA 0207 100R/1%/0,6W/70C/6,5*2,5mm	5
R46	R/SMA 0207 475R/1%/0,6W/70C/6,5*2,5mm	1
R44,45	R/SMA 0207 1K00/1%/0,6W/70C/6,5*2,5mm	2

R58,64	R/SMA 0207 1K21/1%/0,6W/70C/6,5*2,5mm	2
R70,91,99,101,103	R/SMA 0207 1K82/1%/0,6W/70C/6,5*2,5mm	5
R78,79	R/SMA 0207 2K21/1%/0,6W/70C/6,5*2,5mm	2
R63	R/SMA 0207 3K92/1%/0,6W/70C/6,5*2,5mm	1
R83,92,93,97,100,102	R/SMA 0207 4K75/1%/0,6W/70C/6,5*2,5mm	6
R10,11??	R/SMA 0207 4K75/1%/0,6W/70C/6,5*2,5mm	2
R98	R/SMA 0207 5K62/1%/0,6W/70C/6,5*2,5mm	1
R51,57,66,74,86,87,89,90,94	R/SMA 0207 10K0/1%/0,6W/70C/6,5*2,5mm	9
R47,62,69,82	R/SMA 0207 15K0/1%/0,6W/70C/6,5*2,5mm	4
R15,16,34,35,53,54,75,76,88	R/SMA 0207 22K1/1%/0,6W/70C/6,5*2,5mm	9
R20,31,32,48,49,50	R/SMA 0207 30K1/1%/0,6W/70C/6,5*2,5mm	6
R85,95,96	R/SMA 0207 33K2/1%/0,6W/70C/6,5*2,5mm	3
R30	R/SMA 0207 36K5/1%/0,6W/70C/6,5*2,5mm	1
R71,77	R/SMA 0207 47K5/1%/0,6W/70C/6,5*2,5mm	2
R55,59,60	R/SMA 0207 51K1/1%/0,6W/70C/6,5*2,5mm	3
R84	R/SMA 0207 56K1/2%/0,6W/70C/6,5*2,5mm	1
R81	R/SMA 0207 68K1/1%/0,6W/70C/6,5*2,5mm	1
R33	R/SMA 0207 82K5/1%/0,6W/70C/6,5*2,5mm	1
R36,37,38,39,40,41,42,43	R/SMA 0207 130K/1%/0,6W/70C/6,5*2,5mm	8
R17,22	R/SMA 0207 182K/1%/0,6W/70C/6,5*2,5mm	2
R52,80	R/SMA 0207 200K/1%/0,6W/70C/6,5*2,5mm	2
R21	R/SMA 0207 562K/1%/0,6W/70C/6,5*2,5mm	1
R56,72	R/SMA 0207 1M00/1%/0,6W/70C/6,5*2,5mm	2
R9	R KH208-8 4R7/10%/5,0W/70C/25*6,4mm	1
R8	R KH208-8 330R/10%/5,0W/70C/25*6,4mm	1

R1 - R6	P/SL CT6P 10K/10%/0,5W/70C/LIN	6
R7	P/SL CT6P 100K/10%/0,5W/70C/LIN	1
VR1	VARISTOR 460V~/615V-/750V 195W	1
Spoj. jezicak za GEJT	SPOJ. JEZ. 123.011.12625/2,8*0,8mm/1p=10	4
Spoj. jezicak za RC clan	SPOJ. JEZ. 123.014.12523/6,3*0,8mm/1p=10	4
Nat. spojka za gejt	NAT. SPOJ. 35414/2,8*0,8mm/ROT./1p=10k	4
Nat. spojka za RC clan	NAT. SPOJ. 35032/6,3*0,8mm/BLAU/1p=10k	4
JAMPER Naticak: J1, 2, 3	Verbindungsbruc. RM2,54 142270-1, JAMPER	3
JAMPER 3xIGLA: J1, 2, 3	SL 1, Stiftleiste RM2,54 Pol.36, IGLE ZA JUMPER	0.30
REL1	RELE V23127-B6- A101/24V/1200oma/SIEMENS	1
F1, F2	OSIGURAC 0,4A/250V/F/5*20mm	2
Nosac osiguraca F1-F2	NOS. OSIG. E1073/5*20mm	4
X1: 1-3, X2: 21-23, X2: 30-32	STEZ. Kre/3POLIG/1,5qmm/250V/RM=5mm	3
X2: 2-29	STEZ. Kre/6POLIG/1,5qmm/250V/RM=5mm	1
Lemne usice cca 44 kom	LEM. USI. Typ60-1399- 14/11*1mm/1pak=100kom	0.44
ODSTOJNIK 50mm, M3	ODSTOJNIK B5.13503/M3/50mm/lg7,0mm	4
V30,31,32,33	DIODA BA159 1A/1000VR/DO41	4
V19	DIODA BAT48 0,2A/40VR/DO35	1
P1, P3	TRAN. BC327-40 PNP 800mA/45V/SOT54	2
P4	TRAN. BC639-16 NPN 1A/80V/SOT54	1
P5, P6	TRAN. BSS52 NPN 1A/80V/TO39, Dar. B>2.000	2
V12,V18,V24	Z-DIODA BZX79/C4V7 4,7V/500mW/DO35	3
V10,13,16	Z-DIODA BZX79/C10 10V/500mW/DO35	3
V27	Z-DIODA BZX79/C18 18V/500mW/DO35	1
V29	Z-DIODA BZX85/C33 33V/1300mW/DO41	1
V25, V28	DIODA 1N4007 1A/1000VR/DO41	2
V3,4,5,6,7,8,9,11,14,15,17,20,21, 22,23,26	DIODA 1N4148 0,2A/75VR/DO35	16
P2	TRAN. 2N4858 NCH 8mA/40V/TO18	1
IC1, IC7	IC's LM348N	2

IC2	IC's NE555 (DIP8)	1
IC3	IC's TCA785	1
IC4	IC's UA741 (DIL8)	1
U2 stabilizator +15V	IC's UA7815C (TO220)	1
U1 stabilizator -15V	IC's UA7915C (TO220)	1
IC5	IC's MC14011BCP	1
IC6	IC's MC14049UBCP	1
H1,H2	LED-DIODA 3mm/GRUN.	2
X: Stampana ploca	STAMPANA PLOCA "REGPOB-002" -A1	1
T3, T4	IMPULSNI TRAF0, ZKB 4721-005, 2:1 250miks	2
T2	STRUJNI SENZOR LA 55-P ili LA55-P/SP1	1

BLOK SEMA



Datum izr. 5.11.2010
 Projektant Istvan Nad
 Kontrolisao Istvan Nad
 Kontak tel 024/554-166

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STRUJNA SEMA

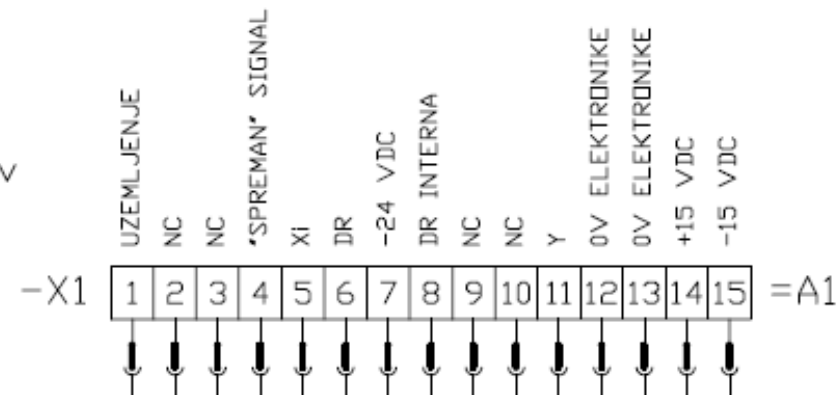
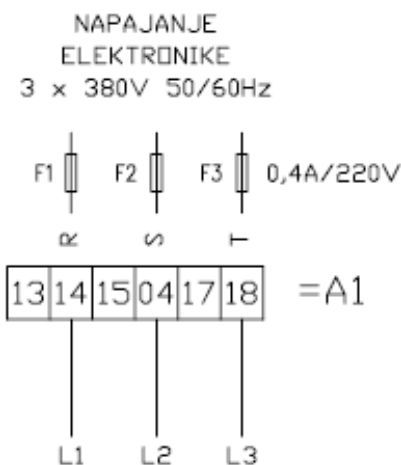
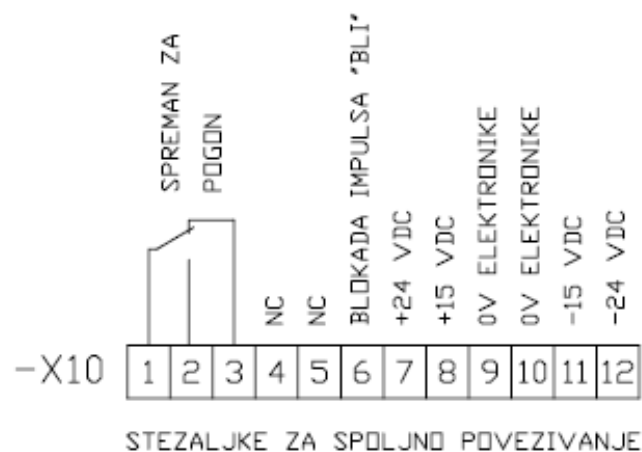
TIROSTORSKI REGULISANI ISPRAVLJAC
 TROFNAP - V005

=A1
 +TRI

List 1

STEZALJKE ZA SPOLJNO POVEZIVANJE

KONEKTORSKA VEZA SA =A2



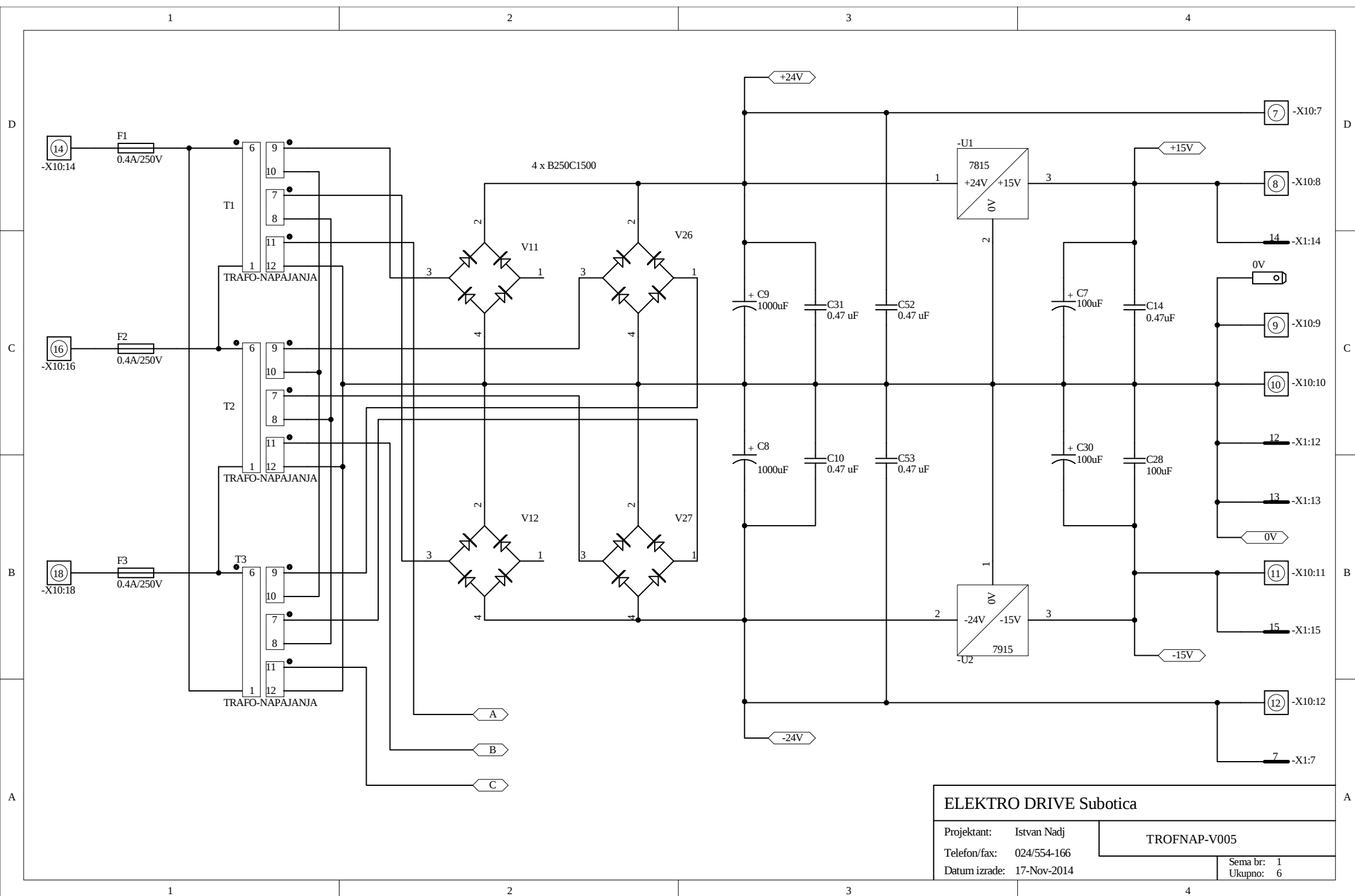
SPOLJNA OPTERETIVOST IZVORA

IZVOR	DODATNO
+24V	100mA
-24V	100mA
+15V	50mA
-15V	50mA



FUNKCIJE POTENCIOMETARA

- R1 KRAJNI UGAD PALJENJA FAZE R-T
- R2 KRAJNI UGAD PALJENJA FAZE S-R
- R3 KRAJNI UGAD PALJENJA FAZE T-S
- R4 NORMIRANJE MERENE VREDNOSTI STRUJE
- R5 PRAG KONTROLE MREZNOG NAPONA



+15V

0V

-15V

-15V

R51
1,1K

V44
BYX10

R53
51K

0V

11
-X1:11

R54
51K

R55
51K

-N6-4

13
+

12
-

14
+

+15V

-15V

R52
15K

0V

+15V

C41
0,1uF

C40
0,1uF

0V

-15V

V43
BAT48

0V

Y

A

R69
33K

C39
0,33uF

0V

R70
22K

R71
12K

-N6-2

5
+

6
-

7
+

R28
100K

C15
1nF

SINH1

B

R73
33K

C42
0,33uF

0V

R74
22K

R75
12K

-N6-1

3
+

2
-

1
+

R31
100K

C22
1nF

SINH2

C

R76
33K

C44
0,33uF

0V

R77
22K

R78
12K

-N6-3

10
+

9
-

8
+

R34
100K

C29
1nF

SINH3

ELEKTRO DRIVE Subotica

Projektant: Istvan Nadj

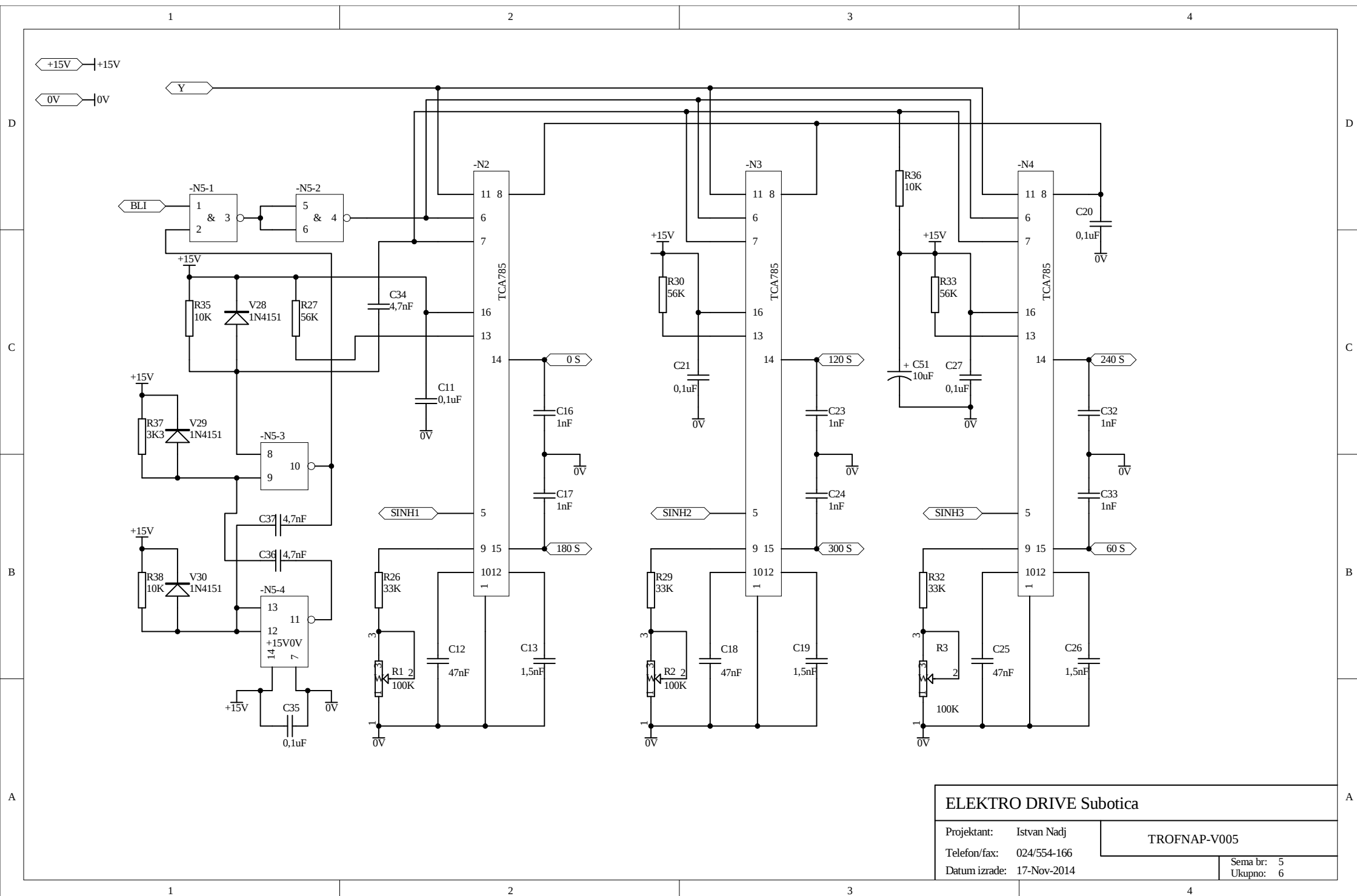
Telefon/fax: 024/554-166

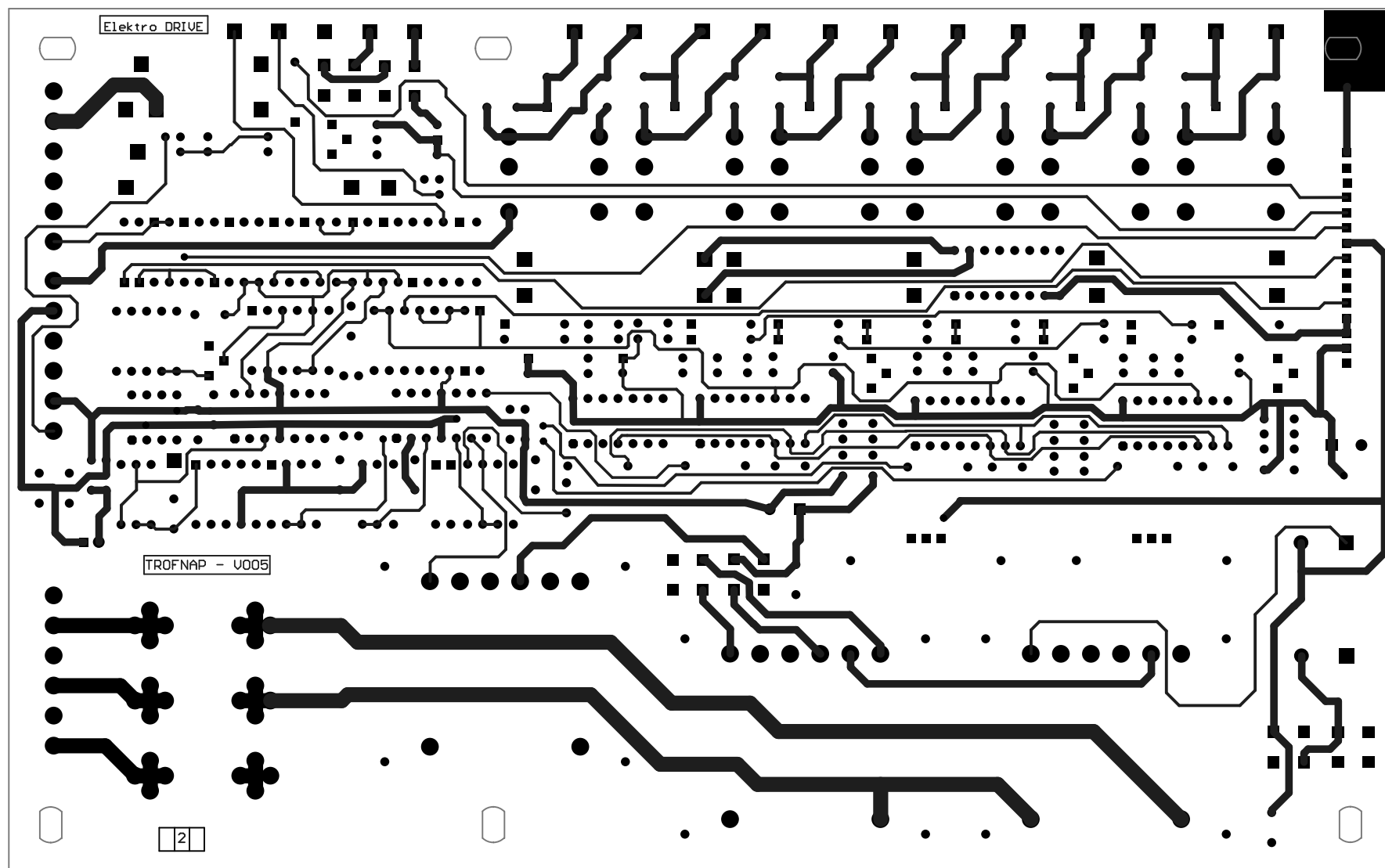
Datum izrade: 17-Nov-2014

TROFNAP-V005

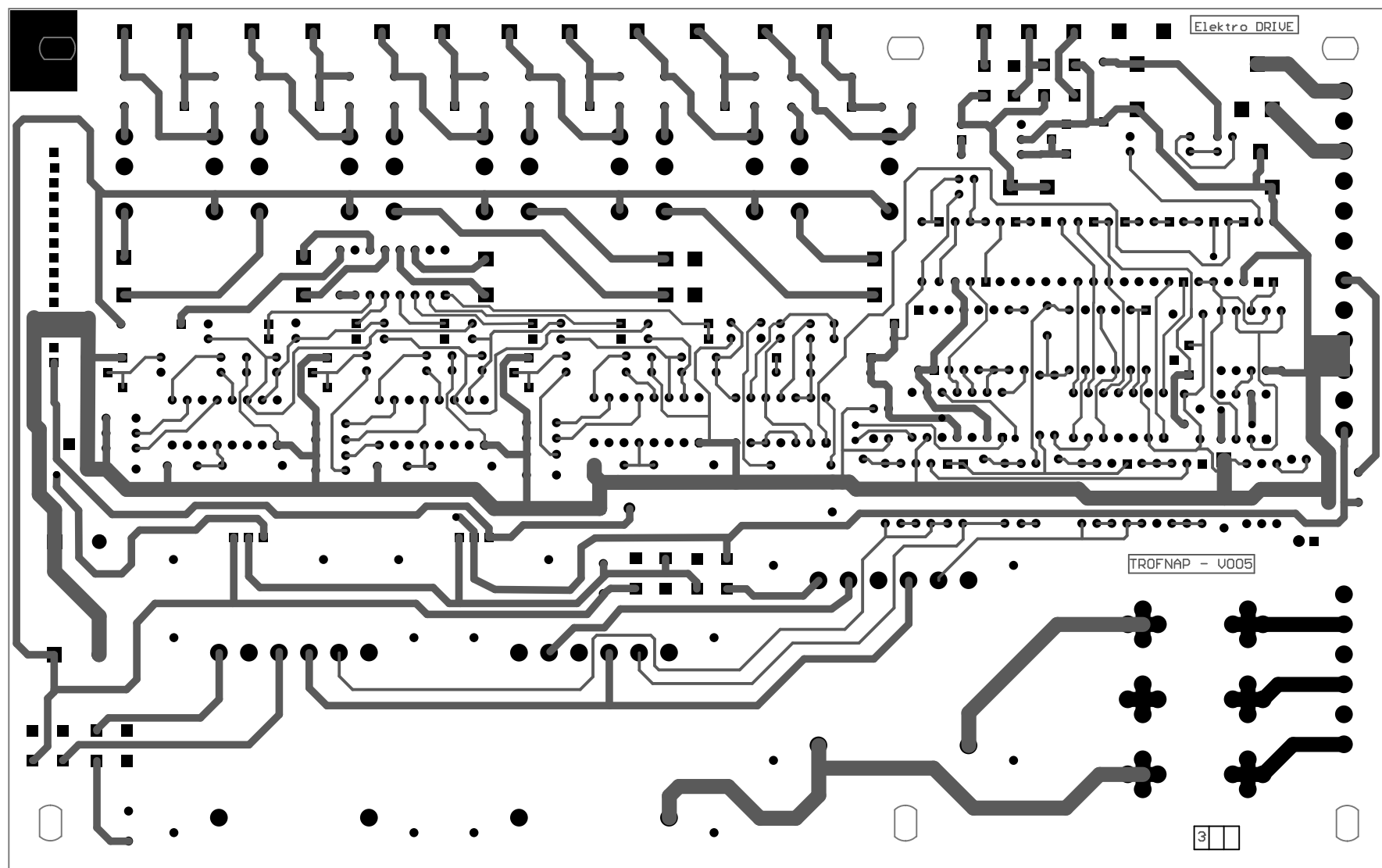
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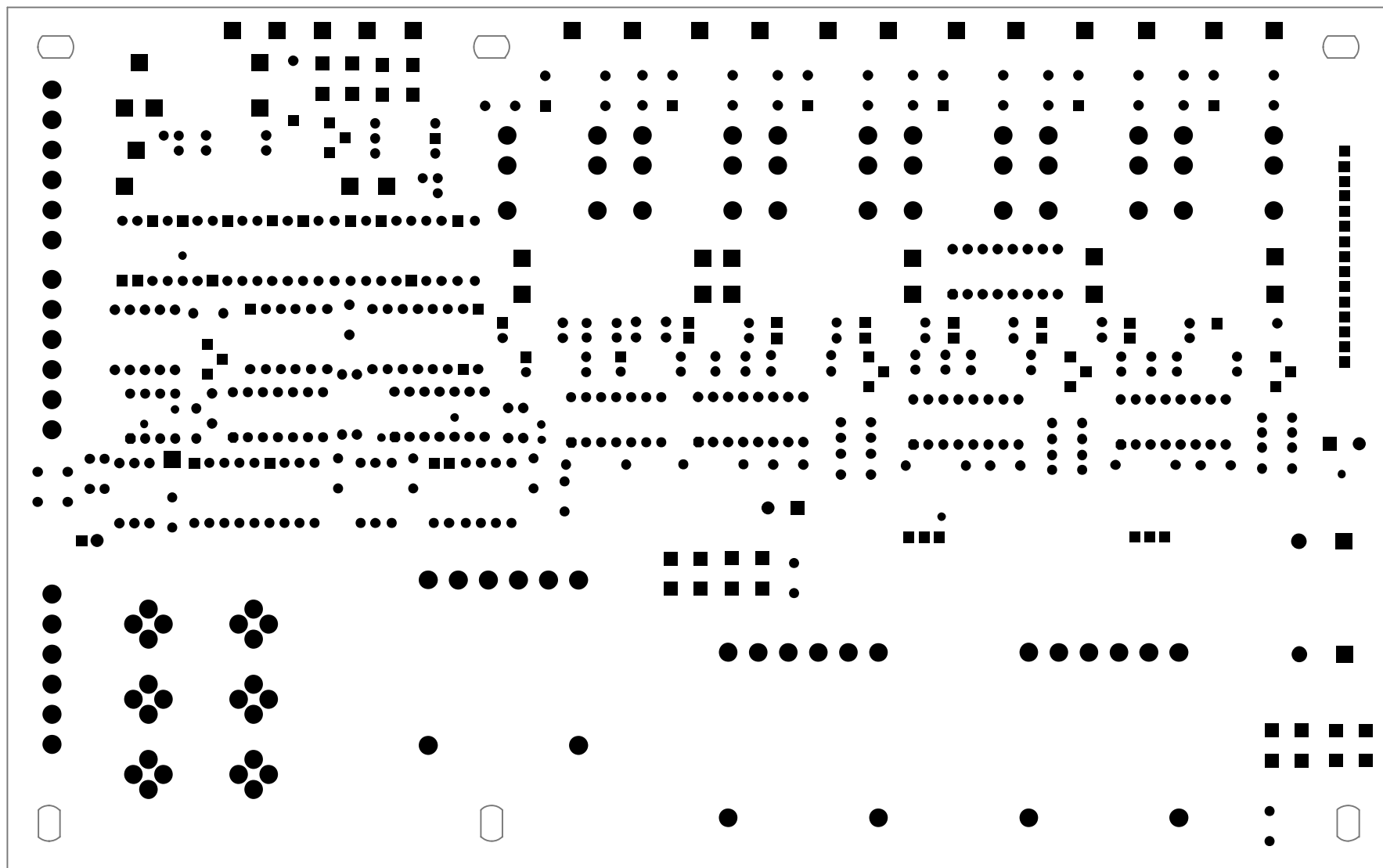


Prednja strana

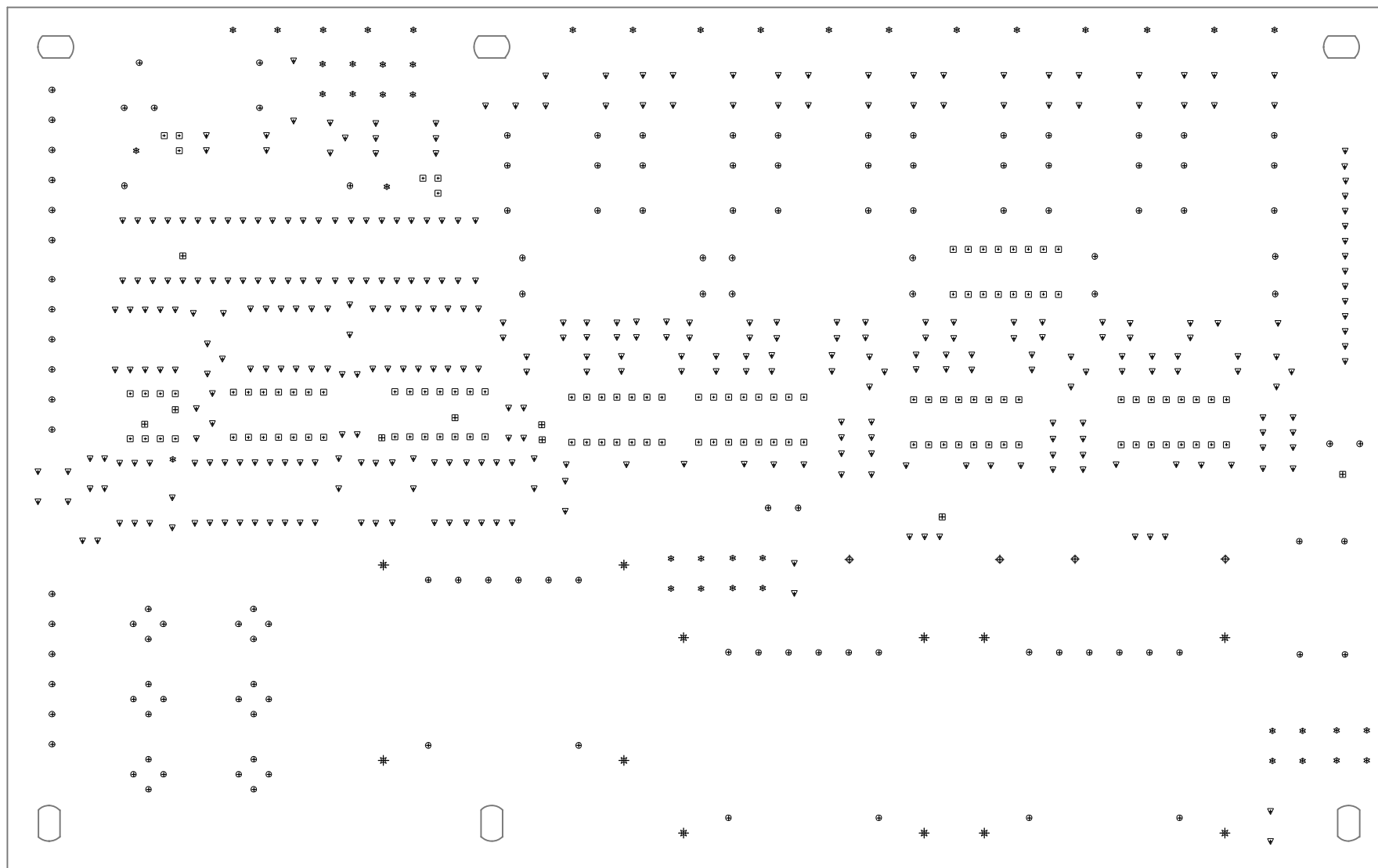


Donja strana





ZAŠTITNI LAK



PLAN BUŠENJA RUPE

Legenda prečnika rupe:

 - 0,8 mm sa metalizacijom

 - 1,0 mm sa metalizacijom

 - 1,1 mm sa metalizacijom

 - 1,3 mm sa metalizacijom

 - 2,8 mm sa metalizacijom

 - 3,5 mm bez metalizacije

SPECIFIKACIJA MATERIJALA : ŠTAMPANA PLOČA "TROFNAP - V005"

OZNAKA	TIP ELEMENTA	Kom.
T1, T2, T3	TRANSFORMATOR ZA NAPAJANJE EI48/21/380V/2*11+20V/T40E	3
T4, T5, T6, T7, T8, T9	IMPULSNI TRAFO, ZKB 4721-005, 2:1 250miks	6
V7, V8, V11, V12, V26, V27	ISPR. B250C1500 B250V/225V/1,5A	6
N8	PODNOZJE M/PK1/M DIL8	1
N5, N6, N7	PODNOZJE M/PK1/M DIL14	3
N1, N2, N3, N4	PODNOZJE M/PK1/M DIL16	4
U1, U2	RASHLADNO TELO SK104/TO220/38,1mm/11K-W	2
C51	C/EL EKO 10uF/20%/40V/5,5*12,5mm RM2,5mm	3
C7, C30	C/EL EKO 100uF/20%/40V/8,5*13,5mm RM5mm	2
C8, C9	C/EL EKO 1000uF/20%/50V/16,5*26,5mm, RM7,5mm	2
C12, C18, C25	C/MKT B32520 47nF/10%/63V/RM5mm	12
C11, C20, C21, C27, C35, C40, C41, C43, C46, C47, C49, C50	C/MKT B32520 0,10uF/10%/63V/RM5mm	12
C1, C2, C3, C4, C5, C6	C/MKT B32520 0,10uF/10%/63V/RM5mm	6
C39, C42, C44	C/MKT B32520 0,33uF/10%/63V/RM5mm	3
C10, C14, C28, C31, C38, C45, C48, C52, C53	C/MKT B32520 0,47uF/10%/63V/RM5mm	9
C15, C16, C17, C22, C23, C24, C29, C32, C33	C/K CK05 1000pF/10%/200V/RM5,08mm	9
C13, C19, C26	C/K CK05 1500pF/10%/200V/RM5,08mm	3
R20, R21, R22, R23, R24, R25	R KH208-8 4R7/10%/5,0W/70C/25*6,4mm	6
R16	R/SMA 0207 47R5/1%/0,6W/70C/6,5*2,5mm	1
R10, R11, R12, R13, R14, R15, R56	R/SMA 0207 100R/1%/0,6W/70C/6,5*2,5mm	7
R17	R/SMA 0207 511R/1%/0,6W/70C/6,5*2,5mm	3
R51	R/SMA 0207 1K10/1%/0,6W/70C/6,5*2,5mm	1
R18	R/SMA 0207 1K21/1%/0,6W/70C/6,5*2,5mm	1
R39	R/SMA 0207 1K82/1%/0,6W/70C/6,5*2,5mm	5
R42, R43, R47, R48, R61	R/SMA 0207	1

	2K21/1%/0,6W/70C/6,5*2,5mm	
R64	R/SMA 0207 4K75/1%/0,6W/70C/6,5*2,5mm	1
R37	R/SMA 0207 3K32/1%/0,6W/70C/6,5*2,5mm	1
R19, R44, R46	R/SMA 0207 5K62/1%/0,6W/70C/6,5*2,5mm	6
R35, R36, R38, R57, R60, R68	R/SMA 0207 10K0/1%/0,6W/70C/6,5*2,5mm	6
R71, R72, R75, R78, R79, R80	R/SMA 0207 12K1/1%/0,6W/70C/6,5*2,5mm	6
R40, R52	R/SMA 0207 15K0/1%/0,6W/70C/6,5*2,5mm	2
R70, R74, R77, R84	R/SMA 0207 22K1/1%/0,6W/70C/6,5*2,5mm	4
R26, R29, R32, R41, R50, R67, R69, R73, R76, R81, R82	R/SMA 0207 33K12/1%/0,6W/70C/6,5*2,5mm	11
R49, R62, R63, R66	R/SMA 0207 47K5/1%/0,6W/70C/6,5*2,5mm	4
R53, R54, R55	R/SMA 0207 51K1/1%/0,6W/70C/6,5*2,5mm	3
R27, R30, R33	R/SMA 0207 56K1/1%/0,6W/70C/6,5*2,5mm	3
R59	R/SMA 0207 68K1/1%/0,6W/70C/6,5*2,5mm	1
R28, R31, R34, R45, R65	R/SMA 0207 100K/1%/0,6W/70C/6,5*2,5mm	5
R83	R/SMA 0207 182K/1%/0,6W/70C/6,5*2,5mm	1
R58	R/SMA 0207 200K/1%/0,6W/70C/6,5*2,5mm	1
R85	R/SMA 0207 274K/1%/0,6W/70C/6,5*2,5mm	1
R4	P/SL CT6P 500R/10%/0,5W/70C/LIN	1
R5	P/SL CT6P 10K/10%/0,5W/70C/LIN	1
R1,R2,R3	P/SL CT6P 100K/10%/0,5W/70C/LIN	3
X1: UTIKAC	UTIK. 2,5MSF/15pol	1
REL 1	RELE V23127-B6- A101/24V/1200oma/SIEMENS	1
F1, F2, F3	OSIGURAC 0,4A/250V/F/5*20mm	3
F1, F2, F3	NOS. OSIG. E1073/5*20mm	6
X10: 1 - 18 STEZALJKE	STEZ. Kre/6POLIG/1,5qmm/250V/RM=5mm	3
Spojni jezicak za GEJT	SPOJ. JEZ. 123.011.12625/2,8*0,8mm/1p=10	19
Nat. spojka za GEJT	NAT. SPOJ. 35414/2,8*0,8mm/ROT./1p=10k	34

X: Lemne usice	LEM. USI. Typ60-1399-14/11*1mm/1pak=100kom	18
X: VIJAK	VIJAK M3*10/4.8ZN/DIN7985/1p=100k	6
X: MATICA	MATICA M3/4.8ZN/DIN934/1p=100k	4
X: PODLOSKA	PODLOSKA M3/A2-DIN137/1pak=100kom	10
ODSTOJNIK	ODSTOJNIK B5.13203/M3/20mm/lg7,0mm	4
ODSTOJNIK	ODSTOJNIK B5.13503/M3/50mm/lg7,0mm	4
P1	TRAN. BC327-40 PNP 800mA/45V/SOT54	1
P2	TRAN. BC639-16 NPN 1A/80V/SOT54	1
V31, V45	Z-DIODA BZX79/C4V7 4,7V/500mW/DO35	2
V44	Z-DIODA BZX79/C10 10V/500mW/DO35	1
V34, V35	Z-DIODA BZX79/C12 12V/500mW/DO35	2
V41	Z-DIODA BZX79/C18 18V/500mW/DO35	1
V10	Z-DIODA BZX79/C24 24V/500mW/DO35	1
V13	Z-DIODA BZX85/C10 10V/1300mW/DO41	1
V1, V2, V3, V4, V5, V6	DIODA BA159 1A/1000VR/DO41	6
V43	DIODA BAT48 0,2A/40VR/DO35	1
V9, V46, V47, V48	DIODA 1N4007 1A/1000VR/DO41	4
V14, V15, V16, V17, V18, V19, V20, V21, V22, V23, V24, V25, V28, V29, V30, V32, V33, V36, V37, V38, V39, V40, V42, V49	DIODA 1N4148 0,2A/75VR/DO35	24
N1	IC's ULN2804	1
N2, N3, N4	IC's TCA785	3
N6, N7	IC's LM348N	3
N8	IC's UA741 (DIL8)	1
N5	IC's MC14011BCP	1
U1	IC's UA7815C (TO220)	1
U2	IC's UA7915C (TO220)	1
X: PLOCA	STAMPANA PLOCA "TROFIAP - V005" -A1	1