NOTA1: Acest desen nu constituie o obligatie de aplicare de către contractor.
El reprezintă doar un exemplu de circuit de cale utilizat la CFR si nu trebuie aplicat ca atare.

NOTE: It is not compulsory for the contractor to apply this drawing.
It is only an example of track circuit in use at CFR and shall not be applied as such.

D					
C					
B					
A					
Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CFR

C.N.C.F. "C.F.R." - S.A.

CLIENT / CLIENT

ITALFERR
GRUPPO FERROVIE DELLO STATO
Joint Venture leader

Scott Wilson

OBERMEYER
PLANEN + BERATEN GmbH

TECNIC
Consulting Engineers

CONSULTANT / CONSULTANT			Data Date	Semnătură Signature
Aprobat Approved	Şef proiect Project manager	R. Liuzza	12.12.2011	
Aprobat Approved	Coordonator Secțiune 1 Section 1 Coordinator	C. Gambelli	12.12.2011	
Verificat Checked	Expert Cheie Key Expert	P. Amodio	12.12.2011	

SUBCONTRACTANT / SUBCONTRACTOR

AREX
COMPANY

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Stanciu - Dinulescu	12.12.2011	
Întocmit Elaborated	Proiectant Designer	ing. Juganaru Adriana	12.12.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulația trenurilor cu viteza maximă de 160 km/h,
Tronsonul : Braşov - Sighişoara
Rehabilitation of the railway line Braşov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h,
Section : Braşov - Sighişoara

Proiect/Project
2004/RO/16/P/PA/003

Faza / Phase:
D.E. / D.D.

Denumire desen / Drawing Title :

Statia / Station ALBESTI TARNAVA
Fise de montaj rama alimentare in secvente a circuitelor de cale
Wiring diagrams for track circuits sequence-supply frame

Codificare / Codification System	Scara / Scale Fără / No scale	LOT / LOT	Nr. / No 01 / 09

E A 5 1 | 0 1 | E | 1 9 | B X | S E | 0 1 | 9 | 2 | 0 1 2 | 1

RAMA G

	1	2	3	4	5
6		NF1–2000 ASA5 VS1–3	NF1–2000 VS1–4	NF1–2000 ASA5 VS2–4	NF1–2000 VS2–1
5	2x0,5A	PIC–1 VS1B–CI	VS1B–BD	PIC–1 VS2B–CI	VS2B–BD
4	4x0,5A	PIC–1 VS1A–CI	VS1A–BD	PIC–1 VS2A–CI	VS2A–BD

	1	2	3	4
3		GENERATOR IMPULSURI DE SINCRONIZARE X1–3		GENERATOR IMPULSURI DE SINCRONIZARE Y2–4
2	**1 μF/400 Vca +47Ω RC-31X**		**1 μF/400 Vca +47Ω RC-32X**	
		CONTACTOR STATIC FARA PROTECTIE CS–3X		CONTACTOR STATIC FARA PROTECTIE CS–4Y
1	**1 μF/400 Vca +47Ω RC-11X**		**1 μF/400 Vca +47Ω RC-12X**	
		CONTACTOR STATIC FARA PROTECTIE CS–1X		CONTACTOR STATIC FARA PROTECTIE CS–2Y

	1	2	3	4	5
0	4x0,5A Sincronizare BLA–X (S1,S3)	2x0,5A ALIMENTARE EMITATOR CENTRAL	4x0,5A Sincronizare BLA–Y (S2,S4)	2x5A Alim.Rame(FI)	4x0,5A Comanda secvente (S1,S2)

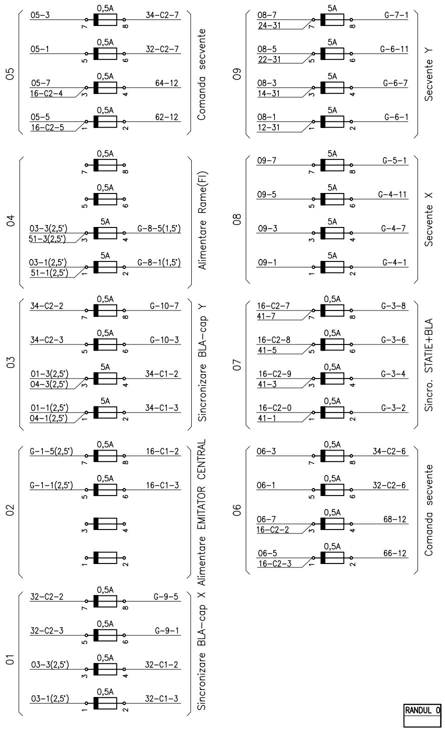
Statia: Albesti

6	7	8	9
NF1−2000	NF1−2000	NF1−2000	NF1−2000
ASA5		ASA5	
VS3−1	VS3−2	VS4−2	VS4−3
PIC−1		PIC−1	
VS3B−CI	VS3B−BD	VS4B−CI	VS4B−BD
PIC−1		PIC−1	
VS3A−CI	VS3A−BD	VS4A−CI	VS4A−BD

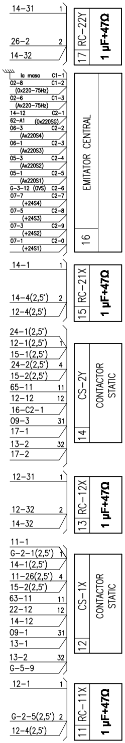
5	6	7
1 µF/400 Vca +47Ω RC-41Y		**1 µF/400 Vca +47Ω RC-42Y**
1 µF/400 Vca +47Ω RC-21Y		**1 µF/400 Vca +47Ω RC-22Y**
	EMITATOR CENTRAL	

6	7	8	9
4x0,5A Comanda secvente (S3,S4)	4x0,5A Sincronizare STATIE+BLA	4x5A SECV. X	4x5A SECV. Y

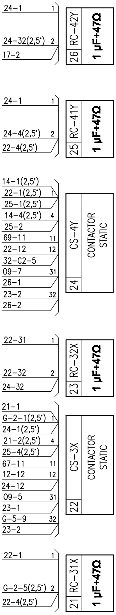
RANDUL 0


05
05−3 0,5A 34−C2−7
05−1 0,5A 32−C2−7
05−7 16−C2−4 0,5A 64−12
05−5 16−C2−5 0,5A 62−12
Comanda secvente
04
0,5A
0,5A
03−3(2,5') 51−3(2,5') 5A G−8−5(1,5')
03−1(2,5') 51−1(2,5') 5A G−8−1(1,5')
Alimentare Rame(FI)
03
34−C2−2 0,5A G−10−7
34−C2−3 0,5A G−10−3
01−3(2,5') 04−3(2,5') 5A 34−C1−2
01−1(2,5') 04−1(2,5') 5A 34−C1−3
Sincronizare BLA−cap Y
02
G−1−5(2,5') 0,5A 16−C1−2
G−1−1(2,5') 0,5A 16−C1−3
Alimentare EMITATOR CENTRAL
01
32−C2−2 0,5A G−9−5
32−C2−3 0,5A G−9−1
03−3(2,5') 0,5A 32−C1−2
03−1(2,5') 0,5A 32−C1−3
Sincronizare BLA−cap X
09
08−7 24−31 5A G−7−1
08−5 22−31 5A G−6−11
08−3 14−31 5A G−6−7
08−1 12−31 5A G−6−1
Secvente Y
08
09−7 5A G−5−1
09−5 5A G−4−11
09−3 5A G−4−7
09−1 5A G−4−1
Secvente X
07
16−C2−7 41−7 0,5A G−3−8
16−C2−8 41−5 0,5A G−3−6
16−C2−9 41−3 0,5A G−3−4
16−C2−0 41−1 0,5A G−3−2
Sincro. STATIE+BLA
06
06−3 0,5A 34−C2−6
06−1 0,5A 32−C2−6
06−7 16−C2−2 0,5A 68−12
06−5 16−C2−3 0,5A 66−12
Comanda secvente
RANDUL 0

RANDUL 1

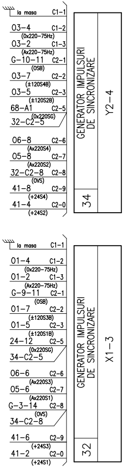

14−31 1
26−2 2
14−32
17 RC−22Y 1 µF+47Ω
la masa C1−1
02−8 C1−2 (0x220−75Hz)
02−6 C1−3 (Ax220−75Hz)
14−12 C2−1
62−A1 (0x220SG)
06−3 C2−2 (Ax220S4)
06−1 C2−3 (Ax220S3)
05−3 C2−4 (Ax220S2)
05−1 C2−5 (Ax220S1)
G−3−12 (0VS) C2−6
07−7 C2−7 (+24S4)
07−5 C2−8 (+24S3)
07−3 C2−9 (+24S2)
07−1 C2−0 (+24S1)
16 EMITATOR CENTRAL
14−1 1
14−4(2,5') 2
12−4(2,5')
15 RC−21X 1 µF+47Ω
24−1(2,5') 12−1(2,5') 1 15−1(2,5')
24−2(2,5') 4 15−2(2,5')
65−11 11
12−12 12 16−C2−1
09−3 31 17−1
13−2 32 17−2
14 CS−2Y CONTACTOR STATIC
12−31 1
12−32 2
14−32
13 RC−12X 1 µF+47Ω
11−1
G−2−1(2,5') 1 14−1(2,5')
11−26(2,5') 4 15−2(2,5')
63−11 11
22−12 12 14−12
09−1 31 13−1
13−2 32 G−5−9
12 CS−1X CONTACTOR STATIC
12−1 1
G−2−5(2,5') 2
12−4(2,5')
11 RC−11X 1 µF+47Ω

RANDUL 2


24-1 1
24-32(2,5') 2
17-2
26
RC-42Y
1 µF+47Ω
24-1 1
24-4(2,5') 2
22-4(2,5')
25
RC-41Y
1 µF+47Ω
14-1(2,5')
22-1(2,5') 1
25-1(2,5')
14-4(2,5') 4
25-2
69-11 11
22-12 12
32-C2-5
09-7 31
26-1
23-2 32
26-2
24
CS-4Y
CONTACTOR STATIC
22-31 1
22-32 2
24-32
23
RC-32X
1 µF+47Ω
21-1
G-2-1(2,5') 1
24-1(2,5')
21-2(2,5') 4
25-4(2,5')
67-11 11
12-12 12
24-12
09-5 31
23-1
G-5-9 32
23-2
22
CS-3X
CONTACTOR STATIC
22-1 1
G-2-5(2,5') 2
22-4(2,5')
21
RC-31X
1 µF+47Ω

RANDUL1+2

RANDUL 3


la masa C1-1
03-4 C1-2
(0x220-75Hz)
03-2 C1-3
(Ax220-75Hz)
G-10-11 C2-1
(0SB)
03-7 C2-2
(±120S4B)
03-5 C2-3
(±120S2B)
68-A1 C2-5
(0x220SG)
32-C2-5
06-8 C2-6
(Ax220S4)
05-8 C2-7
(Ax220S2)
32-C2-8 C2-8
(0VS)
41-8 C2-9
(+24S4)
41-4 C2-0
(+24S2)
GENERATOR IMPULSURI DE SINCRONIZARE
Y2-4
34
la masa C1-1
01-4 C1-2
(0x220-75Hz)
01-2 C1-3
(Ax220-75Hz)
G-9-11 C2-1
(0SB)
01-7 C2-2
(±120S3B)
01-5 C2-3
(±120S1B)
24-12 C2-5
(0x220SG)
34-C2-5
06-6 C2-6
(Ax220S3)
05-6 C2-7
(Ax220S1)
G-3-14 C2-8
(0VS)
34-C2-8
41-6 C2-9
(+24S3)
41-2 C2-0
(+24S1)
GENERATOR IMPULSURI DE SINCRONIZARE
X1-3
32

RANDUL 3

Statia: Albesti

RANDUL 5

59		58		57		56		55		54		53		52		51	
	VS4B-BD		VS4B-CI		VS3B-BD		VS3B-CI		VS2B-BD		VS2B-CI		VS1B-BD		VS1B-CI		2x0,5A
12	**0x220**			12	**0x220**			12	**0x220**			12	**0x220**			1	04-1(2,5') G-1-1(2,5')
11	69-1	11	48-11 68-A12	11	67-1	11	46-11 66-A12	11	65-1	11	44-11 64-A12	11	63-1	11	42-11 62-A12	2	43-51 53-51
		13	**OVS**			13	**OVS**			13	**OVS**			13	**OVS**	3	04-3(2,5') G-1-5(2,5')
32	8-33			32	6-33			32	4-33			32	2-33			4	43-12 53-12
31	8-53			31	6-53			31	4-53			31	2-53				
		33	9-32			33	7-32			33	5-32			33	3-32		
52	**+24S3**			52	**+24S2**			52	**+24S1**			52	**+24S4**				
51	**Ax220**			51	**Ax220**			51	**Ax220**			51	**Ax220**				
		53	9-31			53	7-31			53	5-31			53	3-31		
72	**OVS**			72	**OVS**			72	**OVS**			72	**OVS**				
71	69-4	71	48-71 68-A11	71	67-4	71	46-71 66-A11	71	65-4	71	44-71 64-A11	71	63-4	71	42-71 62-A11		

RANDUL 4

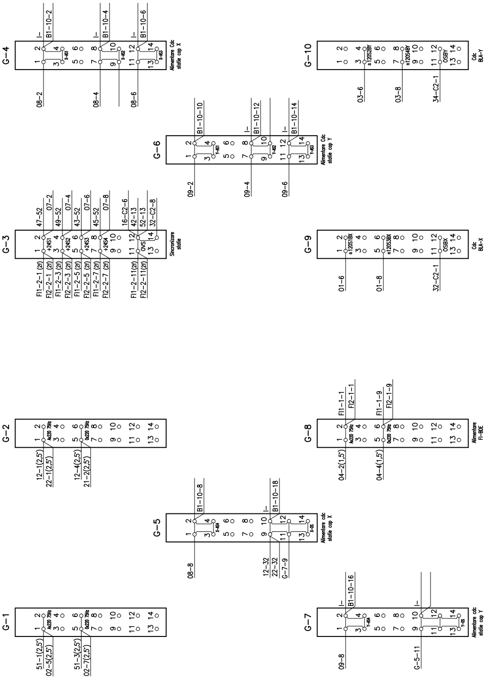
49		48		47		46		45		44		43		42		41	
	VS4A-BD		VS4A-CI		VS3A-BD		VS3A-CI		VS2A-BD		VS2A-CI		VS1A-BD		VS1A-CI		4x0,5A
12	**0x220**			12	**0x220**			12	**0x220**			12	**0x220**			1	07-1
11	68-1	11	58-11	11	66-1	11	56-11	11	64-1	11	54-11	11	62-1	11	52-11	2	32-C2-0
		13	**OVS**			13	**OVS**			13	**OVS**			13	**OVS**	3	07-3
32	8-33			32	6-33			32	4-33			32	2-33			4	34-C2-0
31	8-53			31	6-53			31	4-53			31	2-53			5	07-5
		33	9-32			33	7-32			33	5-32			33	3-32	6	32-C2-9
52	**+24S2**			52	**+24S1**			52	**+24S4**			52	**+24S3**			7	07-7
51	**Ax220**			51	**Ax220**			51	**Ax220**			51	**Ax220**			8	34-C2-9
		53	9-31			53	7-31			53	5-31			53	3-31		
72	**OVS**			72	**OVS**			72	**OVS**			72	**OVS**				
71	68-4	71	58-71	71	66-4	71	56-71	71	64-4	71	54-71	71	62-4	71	52-71		

RANDUL 4+5

RANDUL 6

	9		8		7		6		5		4		3		2		1
Nr. crt.	VS4-3	Nr. crt.	VS4-2	Nr. crt.	VS3-2	Nr. crt.	VS3-1	Nr. crt.	VS2-1	Nr. crt.	VS2-4	Nr. crt.	VS1-4	Nr. crt.	VS1-3	Nr. crt.	
1	59-11	1	49-11	1	57-11	1	47-11	1	55-11	1	45-11	1	53-11	1	43-11		
2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3		
3	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2		
4	59-71	4	49-71	4	57-71	4	47-71	4	55-71	4	45-71	4	53-71	4	43-71		
12	8-11	12	A3 06-4	12	6-11	12	A3 06-2	12	4-11	12	A3 05-4	12	2-11	12	A3 05-2		
11	24-11	11	9-12	11	22-11	11	7-12	11	14-11	11	5-12	11	12-11	11	3-12		
13		13		13		13		13		13		13		13			
22		22		22		22		22		22		22		22			
21		21		21		21		21		21		21		21			
23		23		23		23		23		23		23		23			
32		32		32		32		32		32		32		32			
31		31		31		31		31		31		31		31			
33		33		33		33		33		33		33		33			
42		42		42		42		42		42		42		42			
41		41		41		41		41		41		41		41			
43		43		43		43		43		43		43		43			
52		52		52		52		52		52		52		52			
51		51		51		51		51		51		51		51			
53		53		53		53		53		53		53		53			
62		62		62		62		62		62		62		62			
61		61		61				61		61		61		61			
63		63		63		63		63		63		63		63			
72		72		72		72		72		72		72		72			
71		71		71		71		71		71		71		71			
73		73		73		73		73		73		73		73			
82		82		82		82		82		82		82		82			
81		81		81		81		81		81		81		81			
83		83		83		83		83		83		83		83			
		A1	6-A1 34-C2-5			A1	4-A1 8-A1			A1	2-A1 6-A1			A1	4-A1 16-C2-1		
		A3	12			A3	12			A3	12			A3	12		
		A11	58-71			A11	56-71			A11	54-71			A11	52-71		
		A12	58-11			A12	56-11			A12	54-11			A12	52-11		

RANDUL 6


G−4
I−
B1−10−2
B1−10−4
B1−10−6
X−AS1
X−AS2
X−AS3
Alimentare Cdc statie cap X
08−2
08−4
08−6
G−10
±120S2BY
±120S4BY
OSBY
Cdc BLA−Y
03−6
03−8
34−C2−1
G−6
B1−10−10
B1−10−12
B1−10−14
Y−AS1
Y−AS2
Y−AS3
Alimentare Cdc statie cap Y
09−2
09−4
09−6
G−3
47−52
07−2
49−52
07−4
43−52
07−6
45−52
07−8
16−C2−6
42−13
52−13
32−C2−8
+24S1
+24S2
+24S3
+24S4
OVS
Sincronizare statie
FI1−2−1 (2f)
FI2−2−1 (2f)
FI1−2−3 (2f)
FI2−2−3 (2f)
FI1−2−5 (2f)
FI2−2−5 (2f)
FI1−2−7 (2f)
FI2−2−7 (2f)
FI1−2−11(2f)
FI2−2−11(2f)
G−9
±120S1BX
±120S3BX
OSBX
Cdc BLA−X
01−6
01−8
32−C2−1
G−2
Ax220 75Hz
0x220 75Hz
12−1(2,5')
22−1(2,5')
12−4(2,5')
21−2(2,5')
G−8
FI1−1−1
FI2−1−1
FI1−1−9
FI2−1−9
Alimentare FI−BDE
04−2(1,5')
04−4(1,5')
G−5
B1−10−8
B1−10−18
X−AS4
X−OS
Alimentare cdc statie cap X
08−8
12−32
22−32
G−7−9
G−1
51−1(2,5')
02−5(2,5')
51−3(2,5')
02−7(2,5')
G−7
B1−10−16
Y−AS4
Y−OS
Alimentare cdc statie cap Y
09−8
G−5−11

BUCLE TENSIUNI

+24S1	+24S2	+24S3	+24S4	Ax220	0x220	0VS	0S		0x220SG
G−3−2	G−3−4	G−3−6	G−3−8	51−2	51−4	G−3−12	G−5−9		16−C2−1
47−52	49−52	43−52	45−52	43−51	43−12	42−13	12−32		14−12
55−52	57−52	59−52	53−52	45−51	45−12	43−72	14−32		12−12
				47−51	47−12	44−13	22−32		22−12
				49−51	49−12	45−72	24−32		24−12
				59−51	59−12	46−13			32−C2−5
				57−51	57−12	47−72			34−C2−5
				55−51	55−12	48−13			68−A1
				53−51	53−12	49−72			66−A1
						59−72			64−A1
						58−13			62−A1
						57−72			
						56−13			
						55−72			
						54−13			
						53−72			
						52−13			
				51−2	51−4	G−3−12	G−5−9		16−C2−1