NOTA: 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.

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

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

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

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	12.2011	
Aprobat Approved	Coordonator Secţiune 1 Section 1 Coordinator	C. Gambelli	12.2011	
Verificat Checked	Expert Cheie Key Expert	P. Amodio	12.2011	

SUBCONTRACTANT / SUBCONTRACTOR AREX COMPANY

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Stanciu - Dinulescu	12.2011	
Întocmit Elaborated	Proiectant Designer	Angelescu Sergiu	12.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulaţia 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 BOD
Fise de montaj rama de aparataj receptie 2
Wiring diagrams for receiving equipment frame 2

Codificare / Codification System	Scara / Scale Fără / No scale	LOT / LOT	Nr. / No 01 / 10

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

RAMA APARATAJ RECEP

	1	2	3	4	5
8	(26–30)a Sil	③ (26–30)a BD	(26–30)b Sil	③ (26–30)b BD	(26–30)c Sil
7	(12–18)c Sil	② (12–18)c BD	16 Sil	③ 16 BD	20–24 Sil
6	(10–14)a Sil	③ (10–14)a BD	(10–14)b Sil	③ (10–14)b BD	(12–18)a Sil
5	024 CI	④ 024 BD	034 CI	② 034 BD	2–8 Sil
3–4	2x0,5 Alimentare voltmetru ciclic	35 INDICATOR CICLIC DE N (VOLTMETRU CICLIC)			
	F12—FATA				
2	21 (10–14)a FC–B	22 (10–14)b FC–B	23 (12–18)a FC–B	24 (12–18)b FC–B	
1	11 024 FC–B	12 034 FC–B	13 2–8 FC–B	14 4–6 FC–B	
01	011 IP–2 024/034	012 IP–2 2–8/4–6	013 IP–2 (10–14)a/(10–14)b	014 IP–2 (12–18)a/(12–18)b	

001	002	003	004	005	006	007	008
8x100 Ω / 0,3A							

TIE 2 (FI2)

6	7	8	9
③ (26-30)c BD	02 CI	④ 02 BD	
④ 20-24 BD	22 Sil	④ 22 BD	
② (12-18)a BD	(12-18)b Sil	② (12-18)b BD	
③ 2-8 BD	4-6 Sil	② 4-6 BD	
IVEL		38	39

FI2-SPATE

24A 02 FC-B	**23A** (26-30)c FC-B	**22A** (26-30)b FC-B	**21A** (26-30)a FC-B
14A 22 FC-B	**13A** 20-24 FC-B	**12A** 16 FC-B	**11A** (12-18)c FC-B

		014A IP-2 (26-30)c/02	**013A** IP-2 (26-30)a/(26-30)b	**012A** IP-2 20-24/22	**011A** IP-2 (12-18)c/16

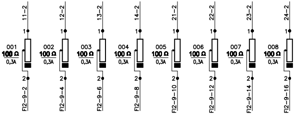
008A	007A	006A	005A	004A	003A	002A	001A
8x100 Ω / 0,3A							

FI2-FATA

21	(10-14)a	22	(10-14)b	23	(12-18)a	24	(12-18)b
1	FI2-9-9	1	FI2-9-11	1	FI2-9-13	1	FI2-9-15
2	005-1	2	006-1	2	007-1	2	008-1
3	013-1 61-11	3	013-5 63-11	3	014-1 65-11	3	014-5 67-11
4	013-2 61-71	4	013-6 63-71	4	014-2 65-71	4	014-6 67-71

11	024	12	034	13	2-8	14	4-6
1	FI2-9-1	1	FI2-9-3	1	FI2-9-5	1	FI2-9-7
2	001-1	2	002-1	2	003-1	2	004-1
3	011-1 51-11	3	011-5 53-11	3	012-1 55-11	3	012-5 57-11
4	011-2 51-71	4	011-6 53-71	4	012-2 55-71	4	012-6 57-71

011	024/034	012	2-8/4-6	013	(10-14)a/(10-14)b	014	(12-18)a/(12-18)b
1	11-3	1	13-3	1	21-3	1	23-3
2	11-4	2	13-4	2	21-4	2	23-4
3	FI2-6-1	3	FI2-6-5	3	FI2-6-9	3	FI2-6-13
4	8 FI2-6-33	4	8 011-8	4	8 012-8	4	8 013-8
5	12-3	5	14-3	5	22-3	5	24-3
6	12-4	6	14-4	6	22-4	6	24-4
7	FI2-6-3	7	FI2-6-7	7	FI2-6-11	7	FI2-6-15
8	4 012-4	8	4 013-4	8	4 014-4	8	4 011A-4


11-2
12-2
13-2
14-2
21-2
22-2
23-2
24-2
1
001
002
003
004
005
006
007
008
100 Ω
0,3A
2
FI2-9-2
FI2-9-4
FI2-9-6
FI2-9-8
FI2-9-10
FI2-9-12
FI2-9-14
FI2-9-16

24A
1
2
3
4

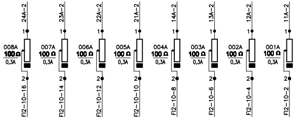
14A
1
2
3
4

FI2–SPATE

02	23A	(26–30)c	22A	(26–30)b	21A	(26–30)a
FI2–10–15	1	FI2–10–13	1	FI2–10–11	1	FI2–10–9
008A–1	2	007A–1	2	006A–1	2	005A–1
014A–5 87–11	3	014A–1 85–11	3	013A–5 83–11	3	013A–1 81–11
014A–6 87–71	4	014A–2 85–71	4	013A–6 83–71	4	013A–2 81–71

22	13A	20–24	12A	16	11A	(12–18)c
FI2–10–7	1	FI2–10–5	1	FI2–10–3	1	FI2–10–1
004A–1	2	003A–1	2	002A–1	2	001A–1
012A–5 77–11	3	012A–1 75–11	3	011A–5 73–11	3	011A–1 71–11
012A–6 77–71	4	012A–2 75–71	4	011A–6 73–71	4	011A–2 71–71

014A	(26–30)c/02	013A	(26–30)a/(26–30)b	012A	20–24/22	011A	(12–18)c/16
1	23A–3	1	21A–3	1	13A–3	1	11A–3
2	23A–4	2	21A–4	2	13A–4	2	11A–4
3	FI2–6–29	3	FI2–6–25	3	FI2–6–21	3	FI2–6–17
4	FI2–6–35 013A–8	4	8 012A–8	4	8 011A–8	4	8 014–8
5	24A–3	5	22A–3	5	14A–3	5	12A–3
6	24A–4	6	22A–4	6	14A–4	6	12A–4
7	FI2–6–31	7	FI2–6–27	7	FI2–6–23	7	FI2–6–19
8	4 FI2–6–35	8	4 014A–4	8	4 013A–4	8	4 012A–4


24A–2
23A–2
22A–2
21A–2
14A–2
13A–2
12A–2
11A–2
1
008A
100 Ω
0,3A
007A
100 Ω
0,3A
006A
100 Ω
0,3A
005A
100 Ω
0,3A
004A
100 Ω
0,3A
003A
100 Ω
0,3A
002A
100 Ω
0,3A
001A
100 Ω
0,3A
2
FI2–10–16
FI2–10–14
FI2–10–12
FI2–10–10
FI2–10–8
FI2–10–6
FI2–10–4
FI2–10–2

RANDUL 3

39		38		35												31	
				INDICATOR CICLIC DE NIVEL												2x0,5 A	
				CUPLA T1			CUPLA T2			CUPLA T3			CUPLA T4				
1		1		CANAL		ADRESA	CANAL		ADRESA	CANAL		ADRESA	CANAL		ADRESA	S1	FI2–1–S1
2		2		0–0	C3		2–0	C3	FI2–6–31	4–0	C3	FI2–7–31	6–0	C3		S2	35–TG–C1
3		3		0–1	B3	FI2–6–1	2–1	B3	FI2–7–1	4–1	B3	FI2–7–33	6–1	B3		S3	FI2–1–S3
4		4		0–2	A4	FI2–6–3	2–2	A4	FI2–7–3	4–2	A4	FI2–7–35	6–2	A4		S4	35–TG–B3
12		12		0–3	C6	FI2–6–5	2–3	C6	FI2–7–5	4–3	C6	FI2–7–36	6–3	C6			
11		11		0–4	B5	FI2–6–7	2–4	B5	FI2–7–7	4–4	B5	FI2–7–34	6–4	B5			
13		13		0–5	A5	FI2–6–9	2–5	A5	FI2–7–9	4–5	A5		6–5	A5			
22		22		0–6	A6	FI2–6–11	2–6	A6	FI2–7–11	4–6	A6		6–6	A6			
21		21		0–7	B6	FI2–6–13	2–7	B6	FI2–7–13	4–7	B6		6–7	B6			
23		23		1–0	C7	FI2–6–15	3–0	C7	FI2–7–15	5–0	C7		7–0	C7			
32		32		1–1	B7	FI2–6–17	3–1	B7	FI2–7–17	5–1	B7		7–1	B7			
31		31		1–2	A8	FI2–6–19	3–2	A8	FI2–7–19	5–2	A8		7–2	A8			
33		33		1–3	A10	FI2–6–21	3–3	A10	FI2–7–21	5–3	A10		7–3	A10			
42		42		1–4	C9	FI2–6–23	3–4	C9	FI2–7–23	5–4	C9		7–4	C9			
41		41		1–5	B9	FI2–6–25	3–5	B9	FI2–7–25	5–5	B9		7–5	B9			
43		43		1–6	C10	FI2–6–27	3–6	C10	FI2–7–27	5–6	C10		7–6	C10			
52		52		1–7	B10	FI2–6–29	3–7	B10	FI2–7–29	5–7	B10		7–7	B10			
51		51		A1–B1–C1 A2–B2–C2 MASA CUPLA			A1–B1–C1 A2–B2–C2 MASA CUPLA			A1–B1–C1 A2–B2–C2 MASA CUPLA			A1–B1–C1 A2–B2–C2 MASA CUPLA				
53		53															
62		62															
61		61															
63		63															
72		72															
71		71															
73		73															
82		82															
81		81															
83		83															

35

CUPLA TG		
ROL		ADRESA
Ax220	C1	31–S2
0x220	B3	31–S4
Protectie	A1	

Statia: BOD

RANDUL 5,6

69		68		67		66		65		64		63		62		61	
			(12–18)b BD		(12–18)b Sil		(12–18)a BD		(12–18)a Sil		(10–14)b BD		(10–14)b Sil		(10–14)a BD		(10–14)a Sil
		12	0x220			12	0x220			12	0x220			12	0x220		
		11	FI2–4–30	11	24–3	11	FI2–4–26	11	23–3	11	FI2–4–22	11	22–3	11	FI2–4–18	11	21–3
				13	OVS			13	OVS			13	OVS			13	OVS
		32	7–33			32	5–33			32	3–33			32	1–33		
		31	7–53			31	5–53			31	3–53			31	1–53		
				33	8–32			33	6–32			33	4–32			33	2–32
		52	+24S2			52	+24S2			52	+24S3			52	+24S3		
		51	Ax220			51	Ax220			51	Ax220			51	Ax220		
				53	8–31			53	6–31			53	4–31			53	2–31
		72	OVS			72	OVS			72	OVS			72	OVS		
		71	FI2–4–32	71	24–4	71	FI2–4–28	71	23–4	71	FI2–4–24	71	22–4	71	FI2–4–20	71	21–4

59		58		57		56		55		54		53		52		51	
			4–6 BD		4–6 Sil		2–8 BD		2–8 Sil		034 BD		034 CI		024 BD		024 CI
		12	0x220			12	0x220			12	0x220			12	0x220		
		11	FI2–4–14	11	14–3	11	FI2–4–10	11	13–3	11	FI2– 4–6	11	12–3	11	FI2–4–2	11	11–3
				13	OVS			13	OVS			13	OVS			13	OVS
		32	7–33			32	5–33			32	3–33			32	1–33		
		31	7–53			31	5–53			31	3–53			31	1–53		
				33	8–32			33	6–32			33	4–32			33	2–32
		52	+24S2			52	+24S3			52	+24S2			52	+24S4		
		51	Ax220			51	Ax220			51	Ax220			51	Ax220		
				53	8–31			53	6–31			53	4–31			53	2–31
		72	OVS			72	OVS			72	OVS			72	OVS		
		71	FI2–4–16	71	14–4	71	FI2–4–12	71	13–4	71	FI2–4–8	71	12–4	71	FI2–4–4	71	11–4

RANDUL 7,8

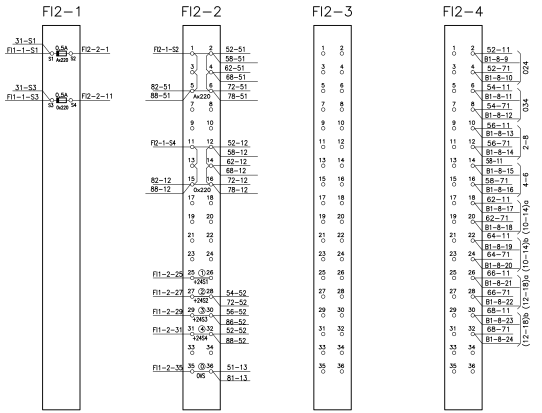
89		88		87		86		85		84		83		82		81	
			02 BD		02 CI		(26–30)c BD		(26–30)c Sil		(26–30)b BD		(26–30)b Sil		(26–30)a BD		(26–30)a Sil
		12	0x220			12	0x220			12	0x220			12	0x220		
		11	FI2–5–30	11	24A–3	11	FI2–5–26	11	23A–3	11	FI2–5–22	11	22A–3	11	FI2–5–18	11	21A–3
				13	OVS			13	OVS			13	OVS			13	OVS
		32	7–33			32	5–33			32	3–33			32	1–33		
		31	7–53			31	5–53			31	3–53			31	1–53		
				33	8–32			33	6–32			33	4–32			33	2–32
		52	+24S4			52	+24S3			52	+24S3			52	+24S3		
		51	Ax220			51	Ax220			51	Ax220			51	Ax220		
				53	8–31			53	6–31			53	4–31			53	2–31
		72	OVS			72	OVS			72	OVS			72	OVS		
		71	FI2–5–32	71	24A–4	71	FI2–5–28	71	23A–4	71	FI2–5–24	71	22A–4	71	FI2–5–20	71	21A–4

79		78		77		76		75		74		73		72		71	
			22 BD		22 Sil		20–24 BD		20–24 Sil		16 BD		16 Sil		(12–18)c BD		(12–18)c Sil
		12	0x220			12	0x220			12	0x220			12	0x220		
		11	FI2–5–14	11	14A–3	11	FI2 –5–10	11	13A–3	11	FI2 –5–6	11	12A–3	11	FI2–5–2	11	11A–3
				13	OVS			13	OVS			13	OVS			13	OVS
		32	7–33			32	5–33			32	3–33			32	1–33		
		31	7–53			31	5–53			31	3–53			31	1–53		
				33	8–32			33	6–32			33	4–32			33	2–32
		52	+24S4			52	+24S4			52	+24S3			52	+24S2		
		51	Ax220			51	Ax220			51	Ax220			51	Ax220		
				53	8–31			53	6–31			53	4–31			53	2–31
		72	OVS			72	OVS			72	OVS			72	OVS		
		71	FI2–5–16	71	14A–4	71	FI2 –5–12	71	13A–4	71	FI2 –5–8	71	12A–4	71	FI2–5–4	71	11A–4

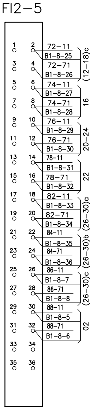
RAMA FI2

BUCLE TENSIUNI

0VS	+24S1	+24S2	+24S3	+24S4	Ax220	0x220
FI2 -2-36	FI2 -2-26	FI2 -2-28	FI2 -2-30	FI2 -2-32	FI2 -2-2	FI2 -2-12
51-13		54-52	56-52	52-52	52-51	52-12
52-72		58-52	62-52	76-52	54-51	54-12
53-13		68-52	64-52	78-52	56-51	56-12
54-72		66-52	74-52	88-52	58-51	58-12
55-13		72-52	82-52		FI2 -2-2	FI2 -2-12
56-72			84-52		FI2 -2-4	FI2 -2-14
57-13			86-52		62-51	62-12
58-72					64-51	64-12
68-72					66-51	66-12
67-13					68-51	68-12
66-72					FI2 -2-4	FI2 -2-14
65-13					FI2 -2-6	FI2 -2-16
64-72					72-51	72-12
63-13					74-51	74-12
62-72					76-51	76-12
61-13					78-51	78-12
71-13					FI2 -2-6	FI2 -2-16
72-72					FI2 -2-5	FI2 -2-15
73-13					82-51	82-12
74-72					84-51	84-12
75-13					86-51	86-12
76-72					88-51	88-12
77-13					FI2 -2-5	FI2 -2-15
78-72						
88-72						
87-13						
86-72						
85-13						
84-72						
83-13						
82-72						
81-13						
FI2 -2-36		FI2 -2-28	FI2 -2-30	FI2 -2-32		


FI2−1
31−S1
FI1−1−S1
0,5A
S1
Ax220
S2
FI2−2−1
31−S3
FI1−1−S3
0,5A
S3
0x220
S4
FI2−2−11
FI2−2
FI2−1−S2
52−51
58−51
62−51
68−51
82−51
88−51
72−51
78−51
Ax220
FI2−1−S4
52−12
58−12
62−12
68−12
82−12
88−12
72−12
78−12
0x220
FI1−2−25
①
+24S1
FI1−2−27
②
+24S2
54−52
72−52
FI1−2−29
③
+24S3
56−52
86−52
FI1−2−31
④
+24S4
52−52
88−52
FI1−2−35
⓪
0VS
51−13
81−13
FI2−3
FI2−4
52−11
B1−8−9
52−71
B1−8−10
024
54−11
B1−8−11
54−71
B1−8−12
034
56−11
B1−8−13
56−71
B1−8−14
2−8
58−11
B1−8−15
58−71
B1−8−16
4−6
62−11
B1−8−17
62−71
B1−8−18
(10−14)a
64−11
B1−8−19
64−71
B1−8−20
(10−14)b
66−11
B1−8−21
66−71
B1−8−22
(12−18)a
68−11
B1−8−23
68−71
B1−8−24
(12−18)b

FI2-5


72-11
B1-8-25
72-71
B1-8-26
74-11
B1-8-27
74-71
B1-8-28
76-11
B1-8-29
76-71
B1-8-30
78-11
B1-8-31
78-71
B1-8-32
82-11
B1-8-33
82-71
B1-8-34
84-11
B1-8-35
84-71
B1-8-36
86-11
B1-8-7
86-71
B1-8-8
88-11
B1-8-5
88-71
B1-8-6
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20-24
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(26-30)b
(26-30)c
02

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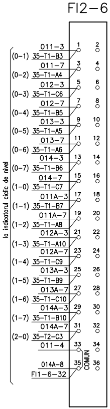
FI2-6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011-7
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012-3
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012-7
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013-3
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013-7
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014-7
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011A-7
(1-2) 35-T1-A8
012A-3
(1-3) 35-T1-A10
012A-7
(1-4) 35-T1-C9
013A-3
(1-5) 35-T1-B9
013A-7
(1-6) 35-T1-C10
014A-3
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014A-8
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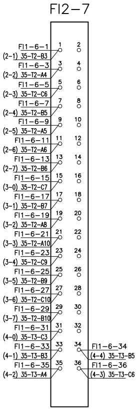
FI2-7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FI1-6-15
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FI1-6-17
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FI1-6-27
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FI1-6-29
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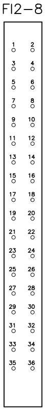
FI2-8



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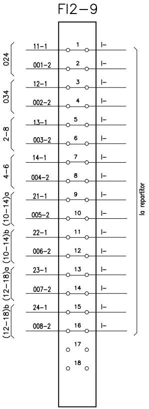
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004-2
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005-2
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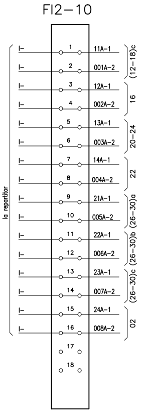
23-1
007-2
24-1
008-2
024
034
2-8
4-6
(10-14)a
(10-14)b
(12-18)a
(12-18)b
I-
la repartitor

FI2-10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005A-2
22A-1
006A-2
23A-1
007A-2
24A-1
008A-2
(12-18)c
16
20-24
22
(26-30)a
(26-30)b
(26-30)c
02

EA51 01 E 05 BX SE 005 2 015 1 10/10