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.

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 FINANŢAT 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 :

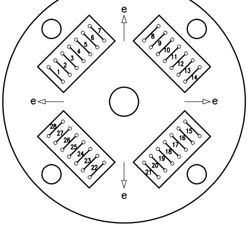
Statia / Station CATA
Fise picheti tip pentru circuite de cale
Model boxes for track circuit equipment

Codificare / Codification System	**Scara / Scale** **Fără / No scale**	**LOT / LOT**	**Nr. / No** **01 / 12**

EA51 01 E 13 BX SE 01 3 2 020 0

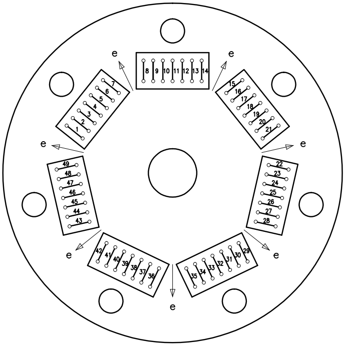
Tabel cu valorile condensatoarelor C1, C2 la capetele de emisie

Circuitul de cale	Secventa	Tip Circuit	Lungimea circuitului de cale (m)	Valoarea capacitatii (μF)	
				C1	C2
XB−1AD	3	bifilar	1400	**3 µF**	**0,47 µF**
XBF−1AD	1	bifilar	1400	**3 µF**	**0,47 µF**
023 C	1	bifilar	305	**1 µF**	**0,47 µF**
033 C	3	bifilar	300	**1 µF**	**0,47 µF**
043 C	2	bifilar	335	**1 µF**	**0,47 µF**
053 C	1	bifilar	300	**1 µF**	**0,47 µF**
1 Si	3	bifilar	85	**0,47 µF**	**0,47 µF**
3−5 Si	1	bifilar	175	**0,47 µF**	**0,47 µF**
7−15 Si	3	bifilar	390	**1 µF**	**0,47 µF**
9−13 Si	2	bifilar	420	**1 µF**	**0,47 µF**
055 C	2	bifilar	575	**2 µF**	**0,47 µF**
045 C	3	bifilar	395	**1 µF**	**0,47 µF**
17 Si	2	bifilar	130	**0,47 µF**	**0,47 µF**
19 Si	1	bifilar	120	**0,47 µF**	**0,47 µF**
21−23 Si	4	bifilar	175	**0,47 µF**	**0,47 µF**
25 Si	3	bifilar	90	**0,47 µF**	**0,47 µF**
I	1	bifilar	925	**2 µF**	**0,47 µF**
II	4	bifilar	955	**2 µF**	**0,47 µF**
III	3	bifilar	955	**2 µF**	**0,47 µF**
IV	2	bifilar	805	**2 µF**	**0,47 µF**
V	1	bifilar	770	**2 µF**	**0,47 µF**
16 Si	3	bifilar	90	**0,47 µF**	**0,47 µF**
12 Si	2	bifilar	95	**0,47 µF**	**0,47 µF**
10−14 Si	4	bifilar	210	**0,47 µF**	**0,47 µF**
4−6 Si	4	bifilar	330	**1 µF**	**0,47 µF**
2−8 Si	3	bifilar	390	**1 µF**	**0,47 µF**
024 C	2	bifilar	360	**1 µF**	**0,47 µF**
034 C	4	bifilar	300	**1 µF**	**0,47 µF**
YF−1AD	4	bifilar	1400	**3 µF**	**0,47 µF**
Y−1AD	2	bifilar	1400	**3 µF**	**0,47 µF**


e
e
e
e
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

C4−28

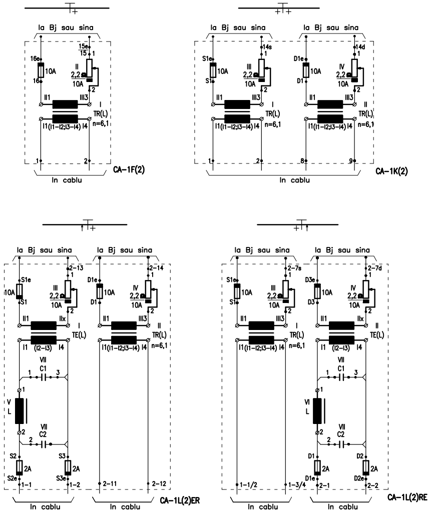
DM2,DR2,DS4


e
e
e
e
e
e
e
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49

C7−49

DM1,DM3,DM4,DR1,DR4,DS1,DS3,DS5,DS7,DS2,DS6,DS8

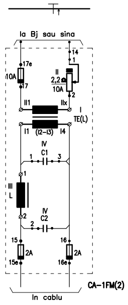
CUTII DE DISTRIBUTIE


la Bj sau sina
16e
10A
16
15e
15
1
II
2,2Ω
10A
2
II1
III3
I
TR(L)
I1(I1−I2;I3−I4) I4
n=6,1
1
2
In cablu
CA−1F(2)
S1e
S1
14s
III
D1e
D1
14d
IV
II
8
9
CA−1K(2)
2−13
2−14
10A
III
IV
IIx
TE(L)
I1 (I2−I3) I4
VII
C1
1
3
V
L
VII
C2
S2
2A
S2e
S3
S3e
1−1
1−2
2−11
2−12
CA−1L(2)ER
2−7s
2−7d
D3e
D3
VI
D2
D1e
D2e
1−1/2
1−3/4
2−1
2−2
CA−1L(2)RE

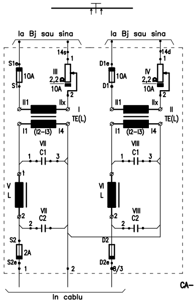
Nota: – La circuitele la care se controleaza ramificatiile, valoarea rezistentei din aparatajul de receptie este de 6Ω/3,3A

– Valoarea condensatorului C1 se coreleaza cu lungimea circuitului de cale si cu tipul de circuit (mono sau bifilar).

SCHEME DE CONECTARE A APARATAJULUI IN CUTII DE APARATAJ PENTRU CIRCUITUL DE CALE


la Bj sau sina
14
17e
10A
17
II
2,2Ω
10A
1
2
II1
IIx
I
TE(L)
I1
(I2–I3)
I4
IV
C1
1
3
III
L
IV
C2
2
15
2A
15e
16
2A
16e
In cablu

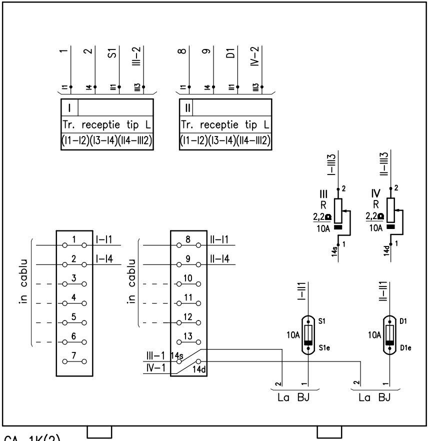
CA–1FM(2)


la Bj sau sina
la Bj sau sina
S1e
10A
S1
14s
III
2,2Ω
10A
D1e
10A
D1
14d
IV
2,2Ω
10A
II1
IIx
I
TE(L)
II
TE(L)
I1
(I2–I3)
I4
VII
C1
VIII
C1
V
L
VI
L
VII
C2
VIII
C2
S2
2A
S2e
D2
D2e
1
2
3/3
In cablu

CA–1P(2)

Nota: Valoarea condensatorului C1 se coreleaza cu lungimea circuitului de cale si cu tipul de circuit (mono sau bifilar).

SCHEME DE CONECTARE A APARATAJULUI IN CUTII DE APARATAJ PENTRU CIRCUITUL DE CALE BIFILAR

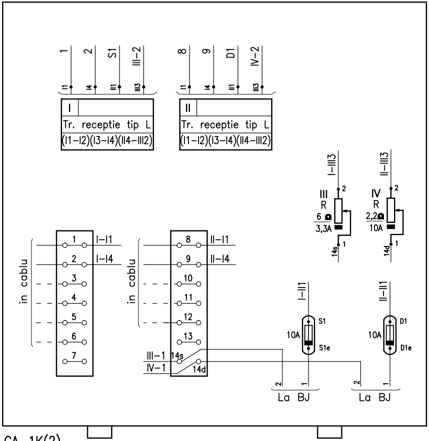

1
2
S1
III–2
I1
I4
II1
III3
I
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
8
9
D1
IV–2
I1
I4
II1
III3
II
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
I–III3
III
R
2,2Ω
10A
2
1
14s
II–III3
IV
R
2,2Ω
10A
2
1
14d
in cablu
1
2
3
4
5
6
7
I–I1
I–I4
in cablu
8
9
10
11
12
13
II–I1
II–I4
III–1
14s
IV–1
14d
I–II1
S1
10A
S1e
II–II1
D1
10A
D1e
2
1
La BJ
2
1
La BJ

CA–1K(2)
BIF

1 Si; 053 C
043 C; 3–5 Si
19 Si; 9–13 Si
045 C; 21–23 Si

25 Si; 055 C
II C; 12 Si
1 C; 16 Si
(10–14)c Si; V C

CUTIE APARATAJ PENTRU DOUA RECEPTII

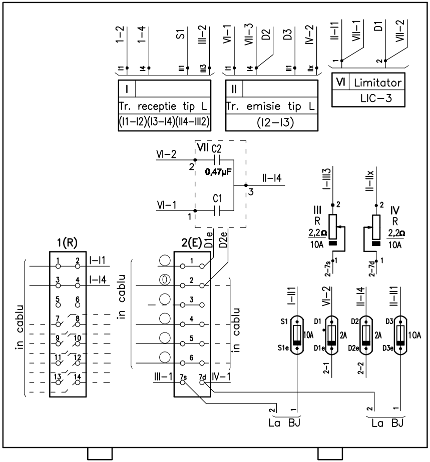

1
2
S1
III-2
I1 I4 II1 III3
8
9
D1
IV-2
I
Tr. receptie tip L
(I1-I2)(I3-I4)(II4-III2)
II
Tr. receptie tip L
(I1-I2)(I3-I4)(II4-III2)
I-III3
III
R
6 Ω
3,3A
14s
II-III3
IV
R
2,2Ω
10A
14d
in cablu
1 2 3 4 5 6 7
I-I1
I-I4
8 9 10 11 12 13
II-I1
II-I4
III-1 14s
IV-1 14d
I-II1
10A
S1
S1e
II-II1
10A
D1
D1e
La BJ
La BJ

CA-1K(2)
BIF

(10-14)a Si; III C
(10-14)b Si; IV C

CUTIE APARATAJ PENTRU DOUA RECEPTII

Statia: CATA **EA51 01 E 13 BX SE 013 2 020 0 7/12**

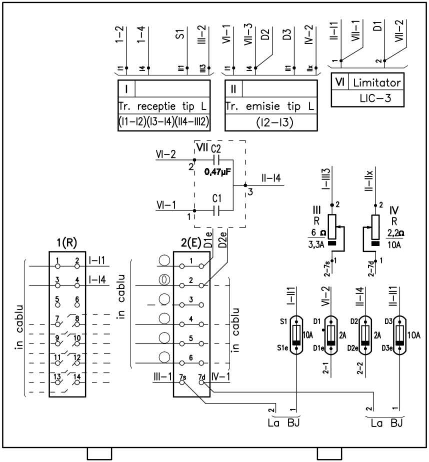

1-2
1-4
S1
III-2
VI-1
VII-3
D2
D3
IV-2
II-I1
VII-1
D1
VII-2
I
Tr. receptie tip L
(I1-I2)(I3-I4)(II4-III2)
II
Tr. emisie tip L
(I2-I3)
VI Limitator
LIC-3
VII C2
0,47µF
C1
VI-2
VI-1
II-I4
I-III3
III
R
2,2Ω
10A
2-7s
II-IIx
IV
R
2,2Ω
10A
2-7d
1(R)
2(E)
D1e
D2e
in cablu
I-I1
I-I4
III-1 7s
7d IV-1
I-II1
S1
S1e
10A
VI-2
D1
D1e
2A
2-1
II-I4
D2
D2e
2A
2-2
II-II1
D3
D3e
10A
La BJ
La BJ

CA-1L(2)RE
BIF

7-15 Si; 17 Si
2-8 Si; 10-14 Si
17b Si; 1 C

CUTIE APARATAJ PENTRU RECEPTIE-EMISIE

Statia: CATA **EA51 01 E 13 BX SE 013 2 020 0 8/12**


1–2
1–4
S1
III–2
VI–1
VII–3
D2
D3
IV–2
II–I1
VII–1
D1
VII–2
I1
I4
II1
III3
I1
I4
II1
IIx
I
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
II
Tr. emisie tip L
(I2–I3)
VI Limitator
LIC–3
VII
C2
0,47µF
C1
VI–2
VI–1
II–I4
I–III3
II–IIx
III
R
6 Ω
3,3A
IV
R
2,2Ω
10A
2–7s
2–7d
1(R)
2(E)
D1e
D2e
I–I1
I–I4
in cablu
III–1
7s
7d
IV–1
I–II1
VI–2
II–I4
II–II1
S1
S1e
10A
D1
D1e
2A
D2
D2e
2A
D3
D3e
10A
2–1
2–2
La BJ
La BJ

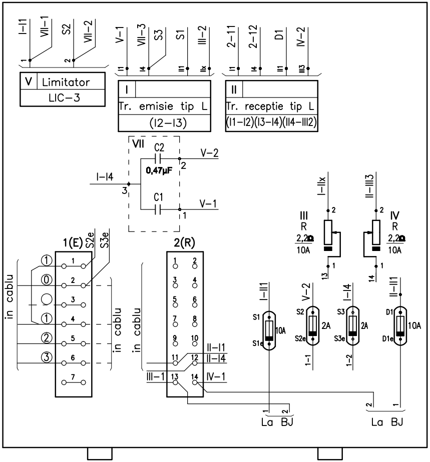
CA–1L(2)RE

BIF

17a Si; II C

CUTIE APARATAJ PENTRU RECEPTIE–EMISIE

Statia: CATA **EA51 01 E 13 BX SE 013 2 020 0 9/12**


I–I1
VII–1
S2
VII–2
V–1
VII–3
S3
S1
III–2
2–11
2–12
D1
IV–2
I1
I4
II1
IIx
I1
I4
II1
III3
V Limitator
LIC–3
I
Tr. emisie tip L
(I2–I3)
II
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
VII
C2
0,47µF
C1
I–I4
V–2
V–1
I–IIx
II–III3
III
R
2,2Ω
10A
IV
R
2,2Ω
10A
1(E)
S2e
S3e
2(R)
in cablu
II–I1
II–I4
III–1
IV–1
I–II1
V–2
I–I4
II–II1
S1
S1e
10A
S2
S2e
2A
S3
S3e
2A
D1
D1e
10A
1–1
1–2
La BJ
La BJ

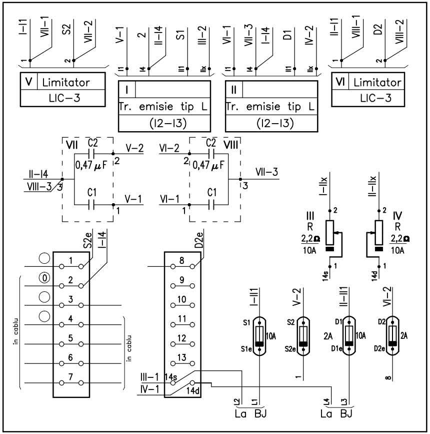
CA–1L(2)ER

BIF

12 Si; 4–6 Si

CUTIE APARATAJ PENTRU EMISIE–RECEPTIE

Statia: CATA **EA51 01 E 19 BX SE 019 2 005 0 10/12**


V Limitator
LIC–3
I
Tr. emisie tip L
(I2–I3)
II
Tr. emisie tip L
(I2–I3)
VI Limitator
LIC–3
VII C2
0,47 μF
C1
V–2
V–1
II–I4
VIII–3
VI–2
C2 VIII
0,47 μF
C1
VI–1
VII–3
III
R
2,2Ω
10A
IV
R
2,2Ω
10A
I–IIx
II–IIx
14s
14d
S2e
I–I4
D2e
in cablu
III–1
IV–1
I–II1
V–2
II–II1
VI–2
S1
S1e
10A
S2
S2e
D1
D1e
2A
10A
D2
D2e
2A
La BJ
La BJ

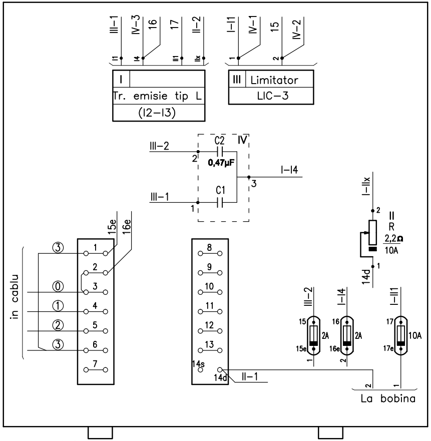
CA–1P(2)

BIF

055 C; 1 Si
9–13 Si; 033 C
023 C; 7–15 Si
045 C; 3–5 Si

III C; 19 Si
21–23 Si; IV C
V C; 25 Si
4–6 Si; 024 C
034 C; 2–8 Si

CUTIE APARATAJ PENTU DOUA EMISII


I
Tr. emisie tip L
(I2–I3)
III Limitator
LIC–3
III–2
C2 IV
0,47μF
C1
III–1
I–I4
I–IIx
II
R
2,2Ω
10A
14d
15e
16e
in cablu
14s
14d
II–1
III–2
I–I4
I–II1
15
15e
2A
16
16e
2A
17
17e
10A
La bobina

CA–1FM(2)

BIF

16 Si

CUTIE APARATAJ PENTRU O EMISIE