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

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 :

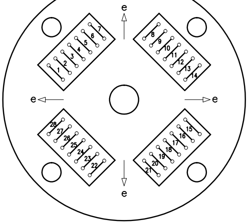
Statia / Station FELDIOARA
Fise picheti tip pentru circuite de cale
Model boxes for track circuit equipment

Codificare / Codification System	Scara / Scale Fără / No scale	LOT / LOT	Nr. / No 01 / 15

E A 5 1 0 1 E 0 7 B X S E 0 0 7 2 0 2 0 0

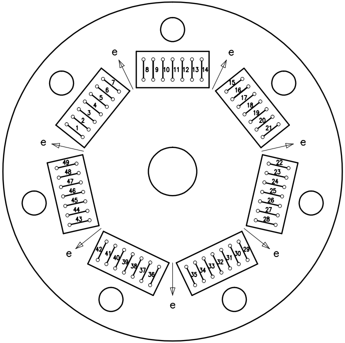
Tabel cu valorile condensatoarelor C1, C2 la capetele de emisie

Circuitul de cale	Secventa	Tip Circuit	Lungimea circuitului de cale (m)	Valoarea capacitatii (μF)	
				C1	C2
033 C	3	bifilar	345	**1 µF**	**0,47 µF**
043 C	1	bifilar	293	**1 µF**	**0,47 µF**
1–7 Si	2	bifilar	360	**1 µF**	**0,47 µF**
3–5 Si	1	bifilar	310	**1 µF**	**0,47 µF**
9–17 Si	1	bifilar	370	**1 µF**	**0,47 µF**
11 Si	3	bifilar	118	**0,47 µF**	**0,47 µF**
13–15 Si	2	bifilar	184	**0,47 µF**	**0,47 µF**
1L	1	bifilar	780	**2 µF**	**0,47 µF**
2L	3	bifilar	780	**2 µF**	**0,47 µF**
IIIL	1	bifilar	1035	**2 µF**	**0,47 µF**
IVL	3	bifilar	1038	**2 µF**	**0,47 µF**
5L	2	bifilar	765	**2 µF**	**0,47 µF**
6L	3	bifilar	765	**2 µF**	**0,47 µF**
18–20 Si	4	bifilar	255	**1 µF**	**0,47 µF**
14 Si	3	monofilar	120	**1 µF**	**0,47 µF**
02 C	4	monofilar	50	**1µF**	**0,47 µF**
10 Si	2	bifilar	143	**0,47 µF**	**0,47 µF**
12–16 Si	4	bifilar	270	**1 µF**	**0,47 µF**
2–8 Si	3	bifilar	365	**1 µF**	**0,47 µF**
4–6 Si	2	bifilar	310	**1 µF**	**0,47 µF**
034 C	2	bifilar	294	**1 µF**	**0,47 µF**
044 C	4	bifilar	345	**1 µF**	**0,47 µF**


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

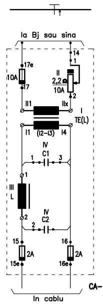
DM4; DR1; DR2; DS9


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

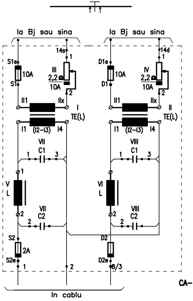
C7−49

DM1; DM3; DM2; DM6; DR4; DS1; DS3; DS5; DS7; DS2; DS4; DS6; DS8

CUTII DE DISTRIBUTIE


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

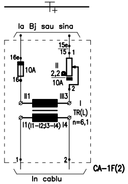
CA−1FM(2)


la Bj sau sina
la Bj sau sina
S1e
10A
S1
14s
1
III
2,2 Ω
10A
2
D1e
10A
D1
14d
1
IV
2,2 Ω
10A
2
II1
IIx
I
TE(L)
II1
IIx
II
TE(L)
I1
(I2−I3)
I4
I1
(I2−I3)
I4
VII
C1
1
3
VIII
C1
1
3
V
L
1
2
VI
L
1
2
VII
C2
2
VIII
C2
2
S2
2A
S2e
1
2
D2
D2e
8/3
In cablu

CA−1P(2)

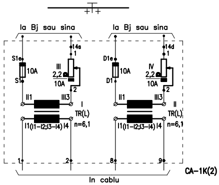
Nota: Valoarea condensatorului C1 se coreleaza cu lungimea circuitului de cale si cu tipul de circuit (mono sau bifilar).

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



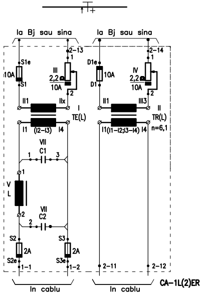
la Bj sau sina
16e
16
10A
15e
15
II
2,2Ω
10A
II1
III3
I
TR(L)
n=6,1
I1(I1–I2;I3–I4) I4
In cablu

CA-1F(2)



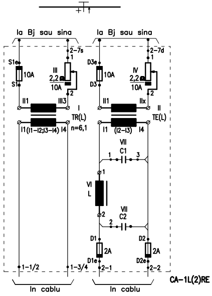
la Bj sau sina
la Bj sau sina
S1e
S1
10A
14s
III
2,2Ω
10A
D1e
D1
14d
IV
II1
III3
I
II
TR(L)
n=6,1
I1(I1–I2;I3–I4) I4
In cablu

CA-1K(2)



la Bj sau sina
la Bj sau sina
S1e
S1
10A
2–13
III
2,2Ω
10A
D1e
D1
2–14
IV
II1
IIx
III3
I
TE(L)
II
TR(L)
n=6,1
I1 (I2–I3) I4
I1(I1–I2;I3–I4) I4
VII
C1
V
L
VII
C2
S2
S2e
2A
S3
S3e
1–1
1–2
2–11
2–12
In cablu
In cablu

CA-1L(2)ER



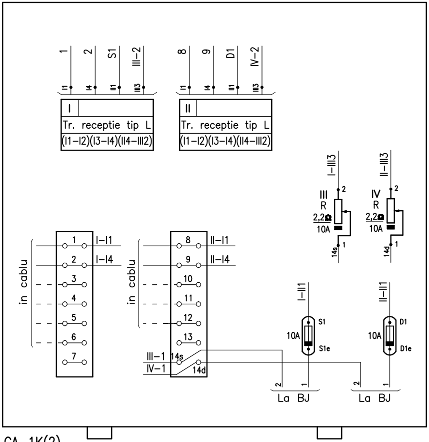
la Bj sau sina
la Bj sau sina
S1e
S1
10A
2–7s
III
2,2Ω
D3e
D3
2–7d
IV
II1
III3
IIx
I
TR(L)
n=6,1
II
TE(L)
I1(I1–I2;I3–I4) I4
I1 (I2–I3) I4
VII
C1
VI
L
VII
C2
D1
D1e
D2
D2e
2A
1–1/2
1–3/4
2–1
2–2
In cablu
In cablu

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



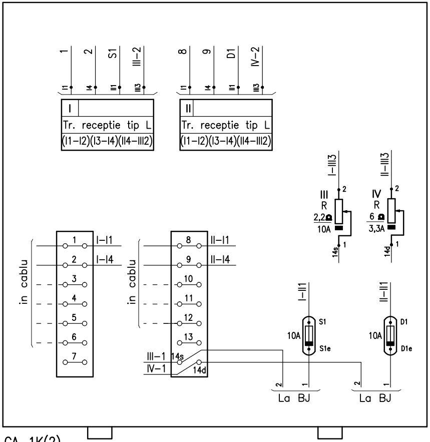
1
2
S1
III–2
8
9
D1
IV–2
I1
I4
II1
III3
I
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
II
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
I–III3
III
R
2,2Ω
10A
14s
II–III3
IV
R
2,2Ω
10A
14d
in cablu
I–I1
I–I4
in cablu
II–I1
II–I4
III–1
IV–1
14s
14d
I–II1
S1
10A
S1e
II–II1
D1
10A
D1e
La BJ
La BJ

CA–1K(2)
BIF

043 C; 1–7 Si
034 C; 2–8 Si
11 Si; 3–5 Si

4–6 Si; 044 C
10 Si; III C
18–20 Si; 2 C
5 C; (12–16)b Si

CUTIE APARATAJ PENTRU DOUA RECEPTII

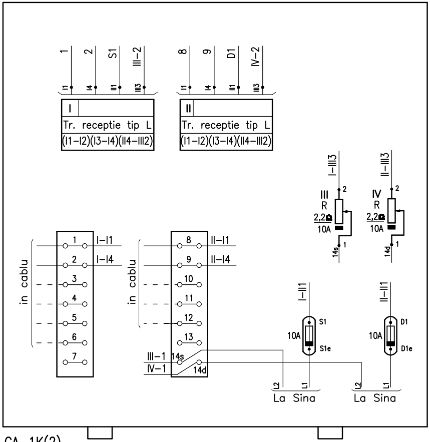

1
2
S1
III–2
8
9
D1
IV–2
I1
I4
II1
II3
I
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
II
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
I–III3
II–III3
III
R
2,2Ω
10A
IV
R
6 Ω
3,3A
2
1
14s
14d
in cablu
1
2
3
4
5
6
7
I–I1
I–I4
in cablu
8
9
10
11
12
13
II–I1
II–I4
III–1
IV–1
14s
14d
I–II1
II–II1
10A
S1
S1e
10A
D1
D1e
2
1
La BJ
2
1
La BJ

CA–1K(2)
BIF

IV C; (12–16)a Si

CUTIE APARATAJ PENTRU DOUA RECEPTII

Statia: Feldioara **EA51 01 E 07 BX SE 007 2 020 0** **07/15**

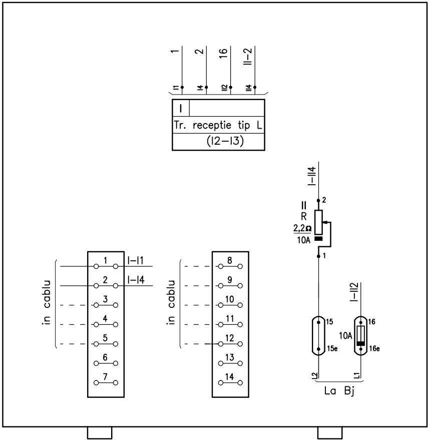

1
2
S1
III–2
8
9
D1
IV–2
I1
I4
II1
II3
I
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
II
Tr. receptie tip L
(I1–I2)(I3–I4)(II4–III2)
I–III3
II–III3
III
R
2,2Ω
10A
IV
R
2,2Ω
10A
2
1
14s
14d
in cablu
1
2
3
4
5
6
7
I–I1
I–I4
in cablu
8
9
10
11
12
13
II–I1
II–I4
III–1
IV–1
14s
14d
I–II1
II–II1
10A
S1
S1e
10A
D1
D1e
L2
L1
La Sina
L2
L1
La Sina

CA–1K(2)
MONO

02 C; 14 Si

CUTIE APARATAJ PENTRU DOUA RECEPTII

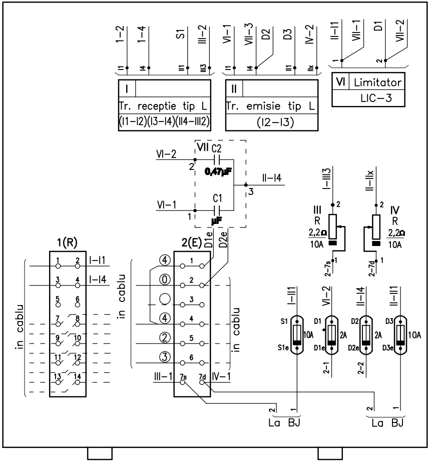
Statia: Feldioara **EA51 01 E 07 BX SE 007 2 020 0** **08/15**


1
2
16
II–2
I1
I4
II2
I4
I
Tr. receptie tip L
(I2–I3)
I–II4
II
R
2,2Ω
10A
2
1
in cablu
1
2
3
4
5
6
7
I–I1
I–I4
in cablu
8
9
10
11
12
13
14
15
15e
10A
16
16e
I–II2
L2
L1
La Bj

CA–1F(2)
BIF

1 L
6 L

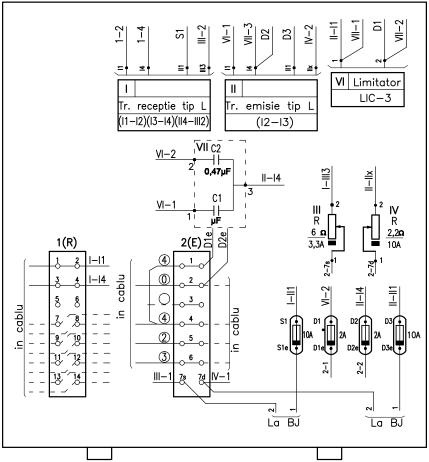
CUTIE APARATAJ PENTRU O RECEPTIE


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
III
IIx
1
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
VI–2
2
0,47µF
II–I4
3
VI–1
1
C1
µF
I–III3
III
R
2,2Ω
10A
II–IIx
IV
R
2,2Ω
10A
1(R)
2(E)
D1e
D2e
in cablu
I–I1
I–I4
④
⓪
④
②
③
in cablu
in cablu
2–7s
2–7d
I–II1
VI–2
II–I4
II–II1
S1
S1e
10A
D1
D1e
2A
D2
D2e
2A
D3
D3e
10A
2–1
2–2
III–1
7s
7d
IV–1
La BJ
La BJ

CA–1L(2)RE
BIF

(9–17)b Si; 5L

CUTIE APARATAJ PENTRU RECEPTIE–EMISIE


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
VI–2
0,47µF
II–I4
VI–1
C1
µF
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–I1
S1
10A
S1e
D1
2A
D1e
D2
2A
D2e
D3
10A
D3e
2–1
2–2
La BJ
La BJ

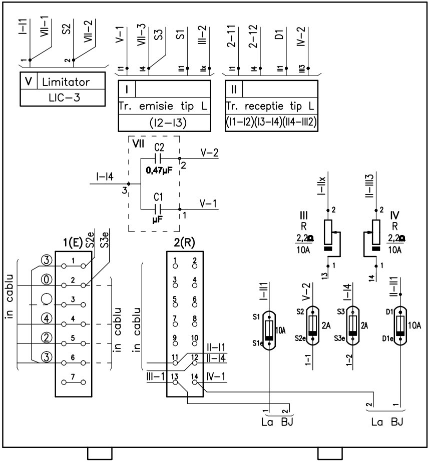
CA–1L(2)RE

BIF

(9–17)a Si; IVL

CUTIE APARATAJ PENTRU RECEPTIE–EMISIE

Statia: Feldioara **EA51 01 E 07 BX SE 007 2 020 0** **11/15**


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
V–2
I–I4
C1
µF
V–1
I–IIx
II–III3
III
R
2,2Ω
10A
IV
R
2,2Ω
10A
13
14
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
10A
S1e
S2
2A
S2e
S3
2A
S3e
D1
10A
D1e
1–1
1–2
La BJ
La BJ

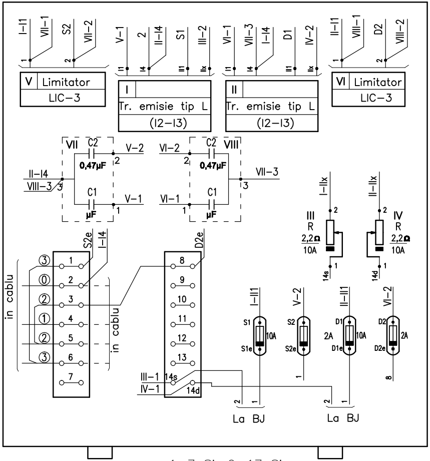
CA–1L(2)ER

BIF

2L; 13–15 Si
3–5 Si; 033 C

CUTIE APARATAJ PENTRU EMISIE–RECEPTIE

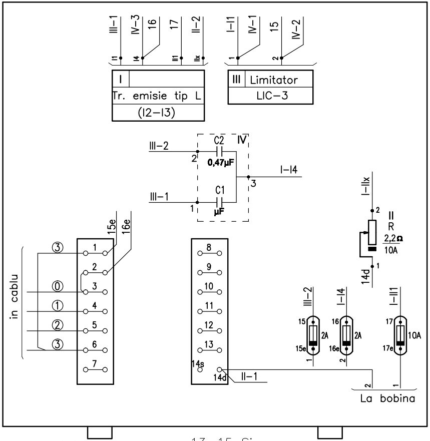
Statia: Feldioara **EA51 01 E 07 BX SE 007 2 020 0** **12/15**


I-I1
VII-1
S2
VII-2
V-1
2
II-I4
S1
III-2
VI-1
VII-3
I-I4
D1
IV-2
II-I1
VIII-1
D2
VIII-2
V Limitator
LIC-3
I
Tr. emisie tip L
(I2-I3)
II
Tr. emisie tip L
(I2-I3)
VI Limitator
LIC-3
VII
C2
0,47µF
V-2
II-I4
VIII-3
C1
µF
V-1
VI-2
VIII
VII-3
VI-1
I-IIx
III
R
2,2Ω
10A
14s
II-IIx
IV
R
2,2Ω
10A
14d
S2e
I-I4
D2e
in cablu
③
⓪
②
①
②
③
in cablu
1
2
3
4
5
6
7
8
9
10
11
12
13
III-1
14s
IV-1
14d
I-II1
V-2
II-II1
VI-2
S1
10A
S1e
S2
2A
S2e
D1
10A
D1e
D2
2A
D2e
La BJ
La BJ

CA-1P(2)
BIF

1-7 Si; 9-17 Si
IIIL; 11 Si
2-8 Si; 10 Si
12-16 Si; 4-6 Si

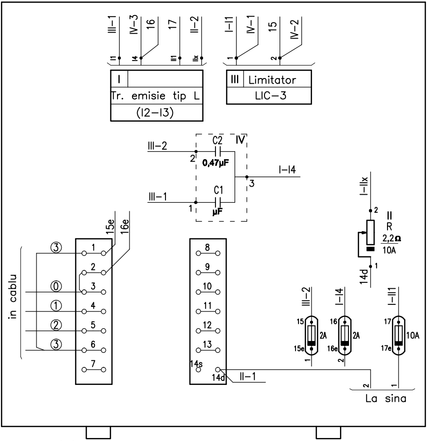
CUTIE APARATAJ PENTRU DOUA EMISII


III-1
IV-3
16
17
II-2
I-I1
IV-1
15
IV-2
I
Tr. emisie tip L
(I2-I3)
III Limitator
LIC-3
III-2
C2
IV
0,47µF
I-I4
III-1
C1
µF
I-IIx
II
R
2,2Ω
10A
14d
15e
16e
in cablu
③
⓪
①
②
③
1
2
3
4
5
6
7
8
9
10
11
12
13
14s
14d
II-1
III-2
I-I4
I-II1
15
2A
15e
16
2A
16e
17
10A
17e
La bobina

CA-1FM(2)
BIF

13-15 Si
18-20 Si
1L
6L

CUTIE APARATAJ PENTRU O EMISIE


III–1
IV–3
16
17
II–2
I–I1
IV–1
15
IV–2
I1
I4
I11
IIx
1
2
I
Tr. emisie tip L
(I2–I3)
III Limitator
LIC–3
III–2
C2
IV
0,47µF
2
I–I4
3
III–1
C1
1
µF
I–IIx
2
II
R
2,2Ω
10A
1
14d
15e
16e
in cablu
③
⓪
①
②
③
1
2
3
4
5
6
7
8
9
10
11
12
13
14s
14d
II–1
III–2
I–I4
I–II1
15
16
17
2A
2A
10A
15e
16e
17e
1
2
2
1
La sina

CA–1FM(2)

MONO

14 Si

02 C

CUTIE APARATAJ PENTRU O EMISIE

Statia: Feldioara **EA51 01 E 07 BX SE 007 2 020 0** **15/15**