Technical Publication
SC-1006R0

Schematics

HF Series Generators
Battery Generators

REVISION HISTORY

REVISION	DATE	REASON FOR CHANGE
Refer to each schematic		

This Document is the english original version, edited and supplied by the manufacturer.

The Revision state of this Document is indicated in the code number shown at the bottom of this page.

ADVISORY SYMBOLS

The following advisory symbols will be used throughout this manual. Their application and meaning are described below.

DANGERS ADVISE OF CONDITIONS OR SITUATIONS THAT IF NOT HEEDED OR AVOIDED WILL CAUSE SERIOUS PERSONAL INJURY OR DEATH.

ADVISE OF CONDITIONS OR SITUATIONS THAT IF NOT HEEDED OR AVOIDED COULD CAUSE SERIOUS PERSONAL INJURY, OR CATASTROPHIC DAMAGE OF EQUIPMENT OR DATA.

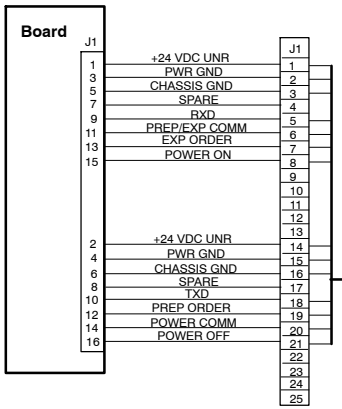
Advise of conditions or situations that if not heeded or avoided could cause personal injury or damage to equipment or data.

Note ☞

Alert readers to pertinent facts and conditions. Notes represent information that is important to know but which do not necessarily relate to possible injury or damage to equipment.

TABLE OF CONTENTS

SERIAL OPERATOR CONSOLE



NOTES:
RXD ON GENERATOR IS CONNECTED TO TXD ON SERIAL OPERATOR CONSOLE
TXD ON GENERATOR IS CONNECTED TO RXD ON SERIAL OPERATOR CONSOLE

TPC or PC INTERFACE BOX

CONNECTOR J1		
SIGNAL	I/O	PIN
CTS (RXD-)	I	1
RXD (RXD+)	I	2
TXD (TXD+)	O	3
RTS (TXD-)	O	4
SPARE PIN 5		5
ACT EXP	O	6
LOGIC GND	O	7
CHASSIS GND	O	8
CHASSIS GND	O	9
+12 VDC		10
-ALOE		11
PWR GND	O	12
PWR GND	O	13
PREP/EXP COMM	O	14
EXP ORDER	I	15
PREP ORDER	I	16
POWER COMM	I/O	17
POWER OFF	I	18
POWER ON	I	19
SPARE PIN 20		20
SPARE PIN 21		21
DOOR		22
DOOR RTN		23
+24 VDC UNR	O	24
+24 VDC UNR	O	25

NOTES:

RXD AND TXD ARE INTERNALLY REVERSED IN TPC OR PC INTERFACE BOX
REFER TO SCHEMATICS I/F-036 FOR OTHER PC INTERFACE BOX CONNECTIONS

SERIAL INTERCONNECTION CABLE FOR SERIAL CONSOLE (A7066-xx or A3149-01)

SERIAL INTERCONNECTION CABLE FOR TPC (A7067-xx or A3352-01)
SERIAL INTERCONNECTION CABLE FOR INTERFACE BOX (A3352-01)

GENERATOR CABINET

NOTE: FOR GENERAL INTERCONNECTIONS REFER TO SCHEMATIC 54301045 (COMPACT / COMPACT-ESM GENERATORS)

CONNECTOR J5		
PIN	I/O	SIGNAL
1	I	CTS (RXD-)
2	I	RXD (RXD+)
3	O	TXD (TXD+)
4	O	RTS (TXD-)
5		SPARE PIN 5
6	O	ACT EXP
7	O	LOGIC GND
8	O	CHASSIS GND
9	O	CHASSIS GND
10		+12 VDC
11		-ALOE
12	O	PWR GND
13	O	PWR GND
14	O	PREP/EXP COMM
15	I	EXP ORDER
16	I	PREP ORDER
17	I/O	POWER COMM
18	I	POWER OFF
19	I	POWER ON
20		SPARE PIN 20
21		SPARE PIN 21
22		DOOR
23		DOOR RTN
24	O	+24 VDC UNR
25	O	+24 VDC UNR

NOTE: REFER TO SCHEMATIC A6188-02 FOR RS-232/422/485 SERIAL COMMUNICATION

REV	DESCRIPTION	ISSUED BY	DATE
C	NC 03 / 050	F. GARCIA	08/03/03
B	New schematic	F. GARCIA	08/01/02
A	Connections	F. GARCIA	02/02/01

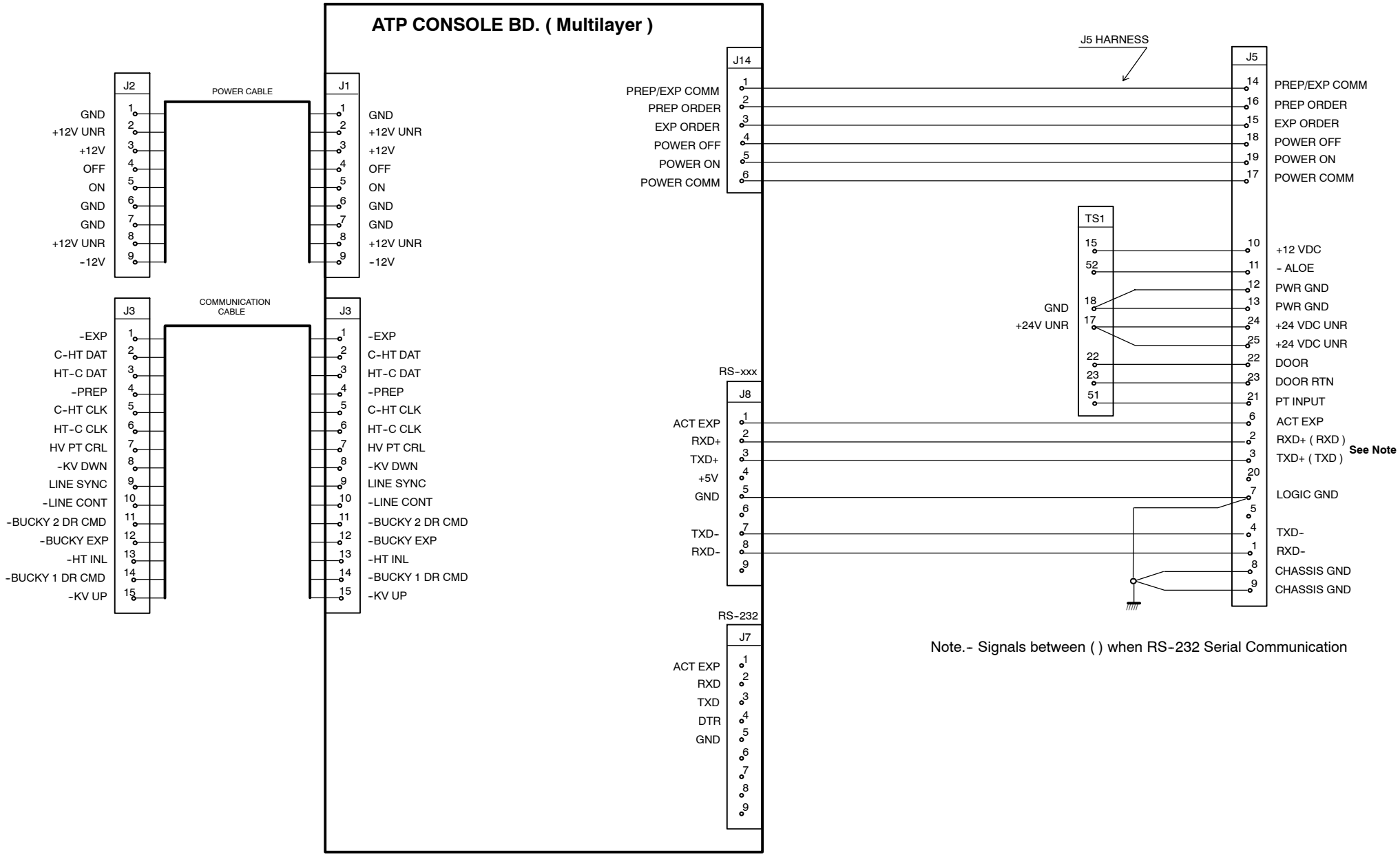
	NAME	DATE	SHEET / OF
DRAWING	F. GARCIA	07/07/99	1 / 1
REVISED	A. DIAZ	24/01/00	

SEDECAL

DWG: 54301052

C B A REV

SERIAL COMMUNICATION TO GENERATOR SYSTEM INTERCONNECTION



Note.- Signals between ( ) when RS-232 Serial Communication

REV	DESCRIPTION	ISSUED BY	DATE
A	CN 04/148	F. GARCIA	09/09/04

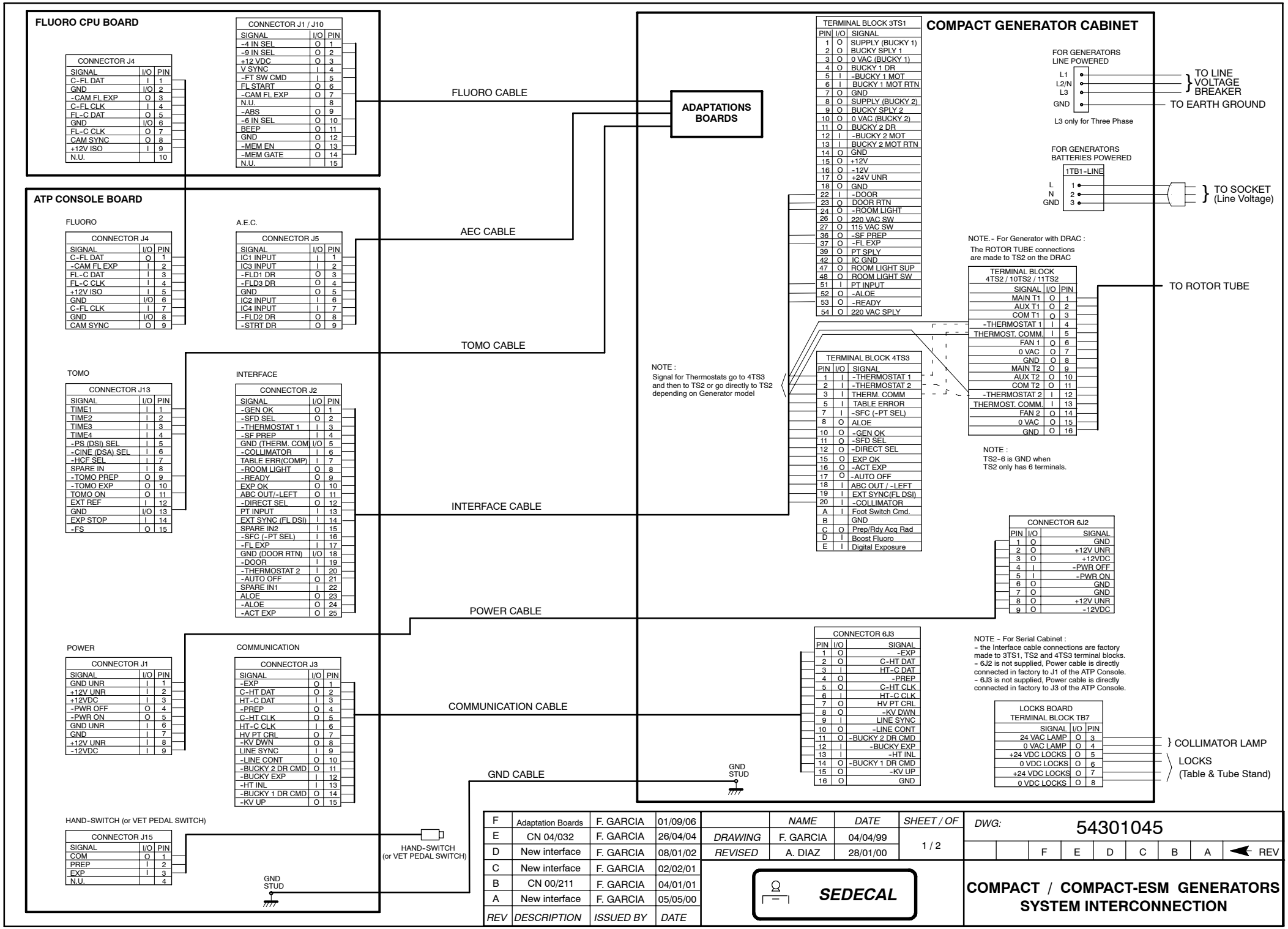
	NAME	DATE	SHEET / OF
DRAWING	F. GARCIA	04/04/04	1 / 1
REVISED	A. DIAZ	04/04/04	

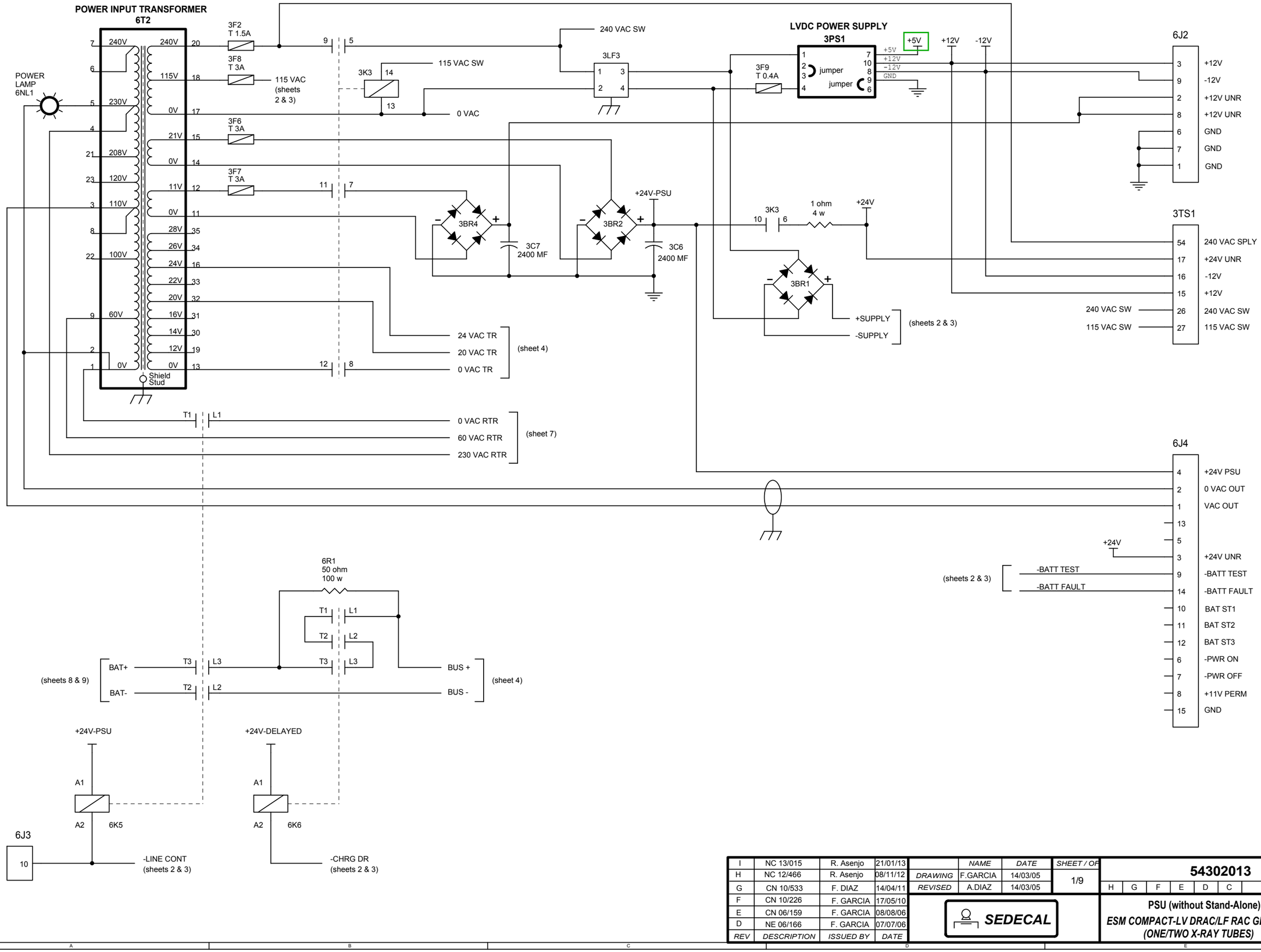
DWG: A6188-03

A REV

SEDECAL

RS-232/422/485 SERIAL COMMUNICATION


FLUORO CPU BOARD
CONNECTOR J4
SIGNAL I/O PIN
C-FL DAT I 1
GND I/O 2
-CAM FL EXP O 3
C-FL CLK I 4
FL-C DAT O 5
GND I/O 6
FL-C CLK O 7
CAM SYNC O 8
+12V ISO I 9
N.U. 10
CONNECTOR J1 / J10
SIGNAL I/O PIN
-4 IN SEL O 1
-9 IN SEL O 2
+12 VDC O 3
V SYNC I 4
-FT SW CMD I 5
FL START O 6
-CAM FL EXP O 7
N.U. 8
-ABS O 9
-6 IN SEL O 10
BEEP O 11
GND O 12
-MEM EN O 13
-MEM GATE O 14
N.U. 15
FLUORO CABLE
ADAPTATIONS BOARDS
ATP CONSOLE BOARD
FLUORO
CONNECTOR J4
SIGNAL I/O PIN
C-FL DAT O 1
-CAM FL EXP I 2
FL-C DAT I 3
FL-C CLK I 4
+12V ISO I 5
GND I/O 6
C-FL CLK I 7
GND I/O 8
CAM SYNC O 9
A.E.C.
CONNECTOR J5
SIGNAL I/O PIN
IC1 INPUT I 1
IC3 INPUT I 2
-FLD1 DR O 3
-FLD3 DR O 4
GND O 5
IC2 INPUT I 6
IC4 INPUT I 7
-FLD2 DR O 8
-STRT DR O 9
AEC CABLE
TOMO CABLE
TOMO
CONNECTOR J13
SIGNAL I/O PIN
TIME1 I 1
TIME2 I 2
TIME3 I 3
TIME4 I 4
-PS (DSI) SEL I 5
-CINE (DSA) SEL I 6
-HCF SEL I 7
SPARE IN I 8
-TOMO PREP O 9
-TOMO EXP O 10
TOMO ON O 11
EXT REF I 12
GND I/O 13
EXP STOP I 14
-FS O 15
INTERFACE
CONNECTOR J2
SIGNAL I/O PIN
-GEN OK O 1
-SFD SEL O 2
-THERMOSTAT 1 I 3
-SF PREP I 4
GND (THERM. COM) I/O 5
-COLLIMATOR I 6
TABLE ERR(COMP) I 7
-ROOM LIGHT O 8
-READY O 9
EXP OK O 10
ABC OUT/-LEFT O 11
-DIRECT SEL O 12
PT INPUT I 13
EXT SYNC (FL DSI) I 14
SPARE IN2 I 15
-SFC (-PT SEL) I 16
-FL EXP I 17
GND (DOOR RTN) I/O 18
-DOOR I 19
-THERMOSTAT 2 I 20
-AUTO OFF O 21
SPARE IN1 I 22
ALOE O 23
-ALOE O 24
-ACT EXP O 25
INTERFACE CABLE
POWER
CONNECTOR J1
SIGNAL I/O PIN
GND UNR I 1
+12V UNR I 2
+12VDC I 3
-PWR OFF O 4
-PWR ON O 5
GND UNR I 6
GND I 7
+12V UNR I 8
-12VDC I 9
POWER CABLE
COMMUNICATION
CONNECTOR J3
SIGNAL I/O PIN
-EXP O 1
C-HT DAT O 2
HT-C DAT I 3
-PREP O 4
C-HT CLK O 5
HT-C CLK I 6
HV PT CRL O 7
-KV DWN O 8
LINE SYNC I 9
-LINE CONT O 10
-BUCKY 2 DR CMD O 11
-BUCKY EXP I 12
-HT INL I 13
-BUCKY 1 DR CMD O 14
-KV UP O 15
COMMUNICATION CABLE
HAND-SWITCH (or VET PEDAL SWITCH)
CONNECTOR J15
SIGNAL I/O PIN
COM O 1
PREP I 2
EXP I 3
N.U. 4
GND STUD
HAND-SWITCH (or VET PEDAL SWITCH)
GND CABLE
GND STUD
COMPACT GENERATOR CABINET
TERMINAL BLOCK 3TS1
PIN I/O SIGNAL
1 O SUPPLY (BUCKY 1)
2 O BUCKY SPLY 1
3 O 0 VAC (BUCKY 1)
4 O BUCKY 1 DR
5 I -BUCKY 1 MOT
6 I BUCKY 1 MOT RTN
7 O GND
8 O SUPPLY (BUCKY 2)
9 O BUCKY SPLY 2
10 O 0 VAC (BUCKY 2)
11 O BUCKY 2 DR
12 I -BUCKY 2 MOT
13 I BUCKY 2 MOT RTN
14 O GND
15 O +12V
16 O -12V
17 O +24V UNR
18 O GND
22 I -DOOR
23 O DOOR RTN
24 O -ROOM LIGHT
26 O 220 VAC SW
27 O 115 VAC SW
36 O -SF PREP
37 O -FL EXP
39 O PT SPLY
42 O IC GND
47 O ROOM LIGHT SUP
48 O ROOM LIGHT SW
51 I PT INPUT
52 O -ALOE
53 O -READY
54 O 220 VAC SPLY
FOR GENERATORS LINE POWERED
L1
L2/N
L3
GND
TO LINE VOLTAGE BREAKER
TO EARTH GROUND
L3 only for Three Phase
FOR GENERATORS BATTERIES POWERED
1TB1-LINE
L 1
N 2
GND 3
TO SOCKET (Line Voltage)
NOTE.- For Generator with DRAC :
The ROTOR TUBE connections are made to TS2 on the DRAC
TERMINAL BLOCK 4TS2 / 10TS2 / 11TS2
SIGNAL I/O PIN
MAIN T1 O 1
AUX T1 O 2
COM T1 O 3
-THERMOSTAT 1 I 4
THERMOST. COMM. I 5
FAN 1 O 6
0 VAC O 7
GND O 8
MAIN T2 O 9
AUX T2 O 10
COM T2 O 11
-THERMOSTAT 2 I 12
THERMOST. COMM. I 13
FAN 2 O 14
0 VAC O 15
GND O 16
TO ROTOR TUBE
NOTE :
TS2-6 is GND when TS2 only has 6 terminals.
NOTE :
Signal for Thermostats go to 4TS3 and then to TS2 or go directly to TS2 depending on Generator model
TERMINAL BLOCK 4TS3
PIN I/O SIGNAL
1 I -THERMOSTAT 1
2 I -THERMOSTAT 2
3 I THERM. COMM
5 I TABLE ERROR
7 I -SFC (-PT SEL)
8 O ALOE
10 O -GEN OK
11 O -SFD SEL
12 O -DIRECT SEL
15 O EXP OK
16 O -ACT EXP
17 O -AUTO OFF
18 I ABC OUT / -LEFT
19 I EXT SYNC(FL DSI)
20 I -COLLIMATOR
A I Foot Switch Cmd.
B GND
C O Prep/Rdy Acq Rad
D I Boost Fluoro
E I Digital Exposure
CONNECTOR 6J2
PIN I/O SIGNAL
1 O GND
2 O +12V UNR
3 O +12VDC
4 I -PWR OFF
5 I -PWR ON
6 O GND
7 O GND
8 O +12V UNR
9 O -12VDC
CONNECTOR 6J3
PIN I/O SIGNAL
1 O -EXP
2 O C-HT DAT
3 I HT-C DAT
4 O -PREP
5 O C-HT CLK
6 I HT-C CLK
7 O HV PT CRL
8 O -KV DWN
9 I LINE SYNC
10 O -LINE CONT
11 O -BUCKY 2 DR CMD
12 I -BUCKY EXP
13 I -HT INL
14 O -BUCKY 1 DR CMD
15 O -KV UP
16 O GND
NOTE - For Serial Cabinet :
- the Interface cable connections are factory made to 3TS1, TS2 and 4TS3 terminal blocks.
- 6J2 is not supplied, Power cable is directly connected in factory to J1 of the ATP Console.
- 6J3 is not supplied, Power cable is directly connected in factory to J3 of the ATP Console.
LOCKS BOARD TERMINAL BLOCK TB7
SIGNAL I/O PIN
24 VAC LAMP O 3
0 VAC LAMP O 4
+24 VDC LOCKS O 5
0 VDC LOCKS O 6
+24 VDC LOCKS O 7
0 VDC LOCKS O 8
COLLIMATOR LAMP
LOCKS (Table & Tube Stand)
F Adaptation Boards F. GARCIA 01/09/06
E CN 04/032 F. GARCIA 26/04/04
D New interface F. GARCIA 08/01/02
C New interface F. GARCIA 02/02/01
B CN 00/211 F. GARCIA 04/01/01
A New interface F. GARCIA 05/05/00
REV DESCRIPTION ISSUED BY DATE
NAME DATE SHEET / OF
DRAWING F. GARCIA 04/04/99
REVISED A. DIAZ 28/01/00
1 / 2
DWG: 54301045
F E D C B A REV
SEDECAL
COMPACT / COMPACT-ESM GENERATORS
SYSTEM INTERCONNECTION



REV	DESCRIPTION	ISSUED BY	DATE
I	NC 13/015	R. Asenjo	21/01/13
H	NC 12/466	R. Asenjo	08/11/12
G	CN 10/533	F. DIAZ	14/04/11
F	CN 10/226	F. GARCIA	17/05/10
E	CN 06/159	F. GARCIA	08/08/06
D	NE 06/166	F. GARCIA	07/07/06

	NAME	DATE
DRAWING	F.GARCIA	14/03/05
REVISED	A.DIAZ	14/03/05

SHEET / OF: 1/9

SEDECAL

54302013

H G F E D C I REV

PSU (without Stand-Alone)

ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)

THIS SHEET ONLY APPLIES TO GENERATORS WITH HT TRANSFORMERS FOR TWO X-RAY TUBES

Controlled by --LINE CONT

From LV DC **3PS1**

HT CONTROL BOARD 3A1

P1: HT-C CLK, HT-C DAT, BAT ST1, BAT ST2, BAT ST3, -TUBE 2 SCL, -FIL 1 SCL, -START, -PRE CHRG, -CHRG DR, -TUBE 3

P2: 1 -12V, 2 +12V, 3 +5V, 4 GND, 5 GND

P1: 1 -KV UP, 2 -KV DWN, 6 -EXP, 4 C-HT DAT, 5 C-HT CLK, 3 -PREP, 9 GND, 7 -CHRG, 8 -FIL 1 ACK

P3: ERROR DRAC, -KV DR1, -KV DR2, -FIL DR1, -FIL DR2, GND

P4: 3 RTR I, 8 FIL I, 4, 1 -KV, 2 +KV, 6 -MA, 7 +MA, 5 GND

P5: -RTR RUN, -ACC, -BRAKE, -HS SCL, -RTR RDY, -IGBT FAULT, -AUTO OFF INH, -BATT FAULT, -BATT TEST, HI MA

See NOTE 2

-T2 SCL (sheet 7) — -TUBE 2 SCL (sheet 7)

-START (sheet 7)

-CHRG DR (sheet 1)

to 6J1-8 (sheet 2)

-KV DR1, -KV DR2 (sheet 4)

-IGBT FAULT (sheet 4)

-BATT FAULT, -BATT TEST (sheet 1)

-12V, +12V, +5V

6J3: PT CRL 7, -KV UP 15, -KV DWN 8, HT-C DAT 3, HT-C CLK 6, -EXP 1, C-HT DAT 2, C-HT CLK 5, -PREP 4

-PREP (sheet 2)

-CHRG (sheet 4)

RTR I (sheet 7)

3TS1: BUCKY SPLY 2, BUCKY SPLY 9, AUX BUCKY SPLY 46, -BUCKY 1 MOTION 5, -BUCKY 2 MOTION 12, BUCKY 1 DR 4, BUCKY 2 DR 11, 0 VAC 3, 0 VAC 10, BUCKY 1 MOT RTN 6, GND 7, BUCKY 2 MOT RTN 13, GND 14, SUPPLY (BUCKY 1) 1, SUPPLY (BUCKY 2) 8

0 VAC

INTERFACE CONTROL BOARD 3A2

P1: 7 -PWR ON, 8 -PWR OFF, 4 PT CRL, 3 ON, 2 GND, 6 +12V, 1 GND

to 6J2: -PWR ON, -PWR OFF

+12V

P6: 4 I/F GND, 3 +11V PERM, 1 -PWR OFF, 2 -PWR ON

+24V

P3: 4 +24V, 2 GND, 1 GND

P4: 12 -BUCKY 1 DR CMD, 13 -BUCKY 2 DR CMD, 9 BUCKY SPLY, 5 AUX BUCKY SPLY, 11 -BUCKY 1 MOTION, 10 -BUCKY 2 MOTION, 8 BUCKY 1 DR, 7 BUCKY 2 DR, 18 -TUBE 2 SCL, 19 -FIL 1 SCL, 17 FIL PREHEAT, 14 FIL RTN, 22 -FIL 1 ACK

(sheet 2): -BUCKY 1 DR CMD, -BUCKY 2 DR CMD

P5: +5V, +24V, +24V, +24V, DELAYED +24V, -LINE CONT, +5V OUT, DISCHARGE 1, DISCHARGE 1 RTN, DISCHARGE 2, DISCHARGE 2 RTN, GND

+5V, +24V, +24V-PSU, DELAYED +24V

-LINE CONT (sheet 1)

+5V OUT (sheet 4)

DISCHARGE 2, DISCHARGE 2 RTN (sheet 4)

P3: LINE SYNC 3

P2: -ROOM LIGHT 2, IC SPLY 1 3, IC SPLY 2 5, PT SPLY 1, IC GND 7, ROOM LIGHT SW 4, ROOM LIGHT SUP 6

P4: -BUCK EXP 6, 115 VAC 2, 0 VAC 1, 115 VAC SW 3, FIL 1 RTN 15, FIL 2 RTN 16, SOL DR 20

See NOTE 1

115 VAC, 0 VAC, 115 VAC SW

-BUCKY 1 DR CMD, -BUCKY 2 DR CMD (sheet 2)

6J3: 14 -BUCKY 1 DR CMD, 11 -BUCKY 2 DR CMD, 9 LINE SYNC, 12 -BUCKY EXP, 16 GND

3TS1: 39 PT SPLY, 42 IC GND, 48 ROOM LIGHT SW, 47 ROOM LIGHT SUP, 24 -ROOM LIGHT, 22 -DOOR, 23 DOOR RTN, 18 GND

J2-18, J2-19, J2-8 — to J2 connector of the ATP CONSOLE board

FILAMENT DRIVER BOARD 3A3

P1: 5 -FIL DR1, 6 -FIL DR2, 3 +5V, 8 DELAYED +24V, 7 FIL I, 1 GND

P3: FIL PREHEAT 2, FIL RTN 1, FIL SUP 4

P2: 4 +SUPPLY, 1 -SUPPLY

DELAYED +24V, +5V

(sheet 1): +SUPPLY, -SUPPLY

HT SW CONTROL 10A2

J2: 4, 3, 2, 1

J1: 1, 2, 3, 4, 5

See NOTE 1

+24V

240 VAC SW

HT TRANSFORMER 9HT1

J1: K HI MA, A GND, B +KV, C -KV, D +MA, E -MA, F FIL 1 RTN, H FIL 2 RTN, G FIL SUP, N SW CMD, U SW1, V SW2, J -HT INTLK

0 VAC

GND

mA test posts: Red, Black

P1 — HT DR1 (sheet 4)

P3 — HT DR2 (sheet 4)

SHLD — COM (sheet 4)

-BRAKE (sheet 7)

-ACC (sheet 7)

6J1 **See NOTE 2**: +24V 10, ERROR DRAC 8, 9, -RTR RUN 1, -TUBE 1 RTR 2, -TUBE 2 RTR 3, -HS SCL 4, -RTR RDY 5, -SF PREP 6, -FL EXP 7, -PREP 12, GND 11

+24V, ERROR DRAC (sheet 2)

(sheet 5 & 6): -SF PREP, -FL EXP

-PREP (sheet 2)

6J3: 13 -HT INTLK

NOTE 2.- For High Speed Version:

-T2 SCL signal is shortcircuited with -TUBE 2 SCL signal.

-ACC and -BRAKE signals for Low Speed Version becomes -TUBE 1 RTR and -TUBE 2 RTR respectively.

6J1 connector used only for High Speed version (see LV-DRAC documentation).

NOTE 1:
Wires FIL 1 RTN (P4-15) and FIL 2 RTN (P4-16), are factory inverted on the INTERFACE CONTROL Board

REV	DESCRIPTION	ISSUED BY	DATE
I	NC 13/015	R. Asenjo	21/01/13
H	NC 12/466	R. Asenjo	08/11/12
G	CN 10/533	F. DIAZ	14/04/11
F	CN 10/226	F. GARCIA	17/05/10
E	CN 06/159	F. GARCIA	08/08/06
D	NE 06/166	F. GARCIA	07/07/06

	NAME	DATE
DRAWING	F.GARCIA	14/03/05
REVISED	A.DIAZ	14/03/05

SHEET / OF: 2/9

SEDECAL

54302013

H G F E D C I ◄ REV

PSU (without Stand-Alone)

ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)

THIS SHEET ONLY APPLIES TO GENERATORS WITH HT TRANSFORMERS FOR ONLY ONE X-RAY TUBE

HT CONTROL BOARD 3A1

P1: HT-C CLK (10), HT-C DAT (11), BAT ST1 (18), BAT ST2 (19), BAT ST3 (20), -TUBE 2 SCL (12), -FIL 1 SCL (13), -START (14), -PRE CHRG (15), -CHRG DR (16), -TUBE 3 (17)

P2: 1 -12V, 2 +12V, 3 +5V, 4 GND, 5 GND

P1: 1 -KV UP, 2 -KV DWN, 6 -EXP, 4 C-HT DAT, 5 C-HT CLK, 3 -PREP, 9 GND, 7 -CHRG, 8 -FIL 1 ACK

P3: ERROR DRAC (6), -KV DR1 (1), -KV DR2 (2), -FIL DR1 (4), -FIL DR2 (5), GND (3)

P4: 3 RTR I, 8 FIL I, 4, 1 -KV, 2 +KV, 6 -MA, 7 +MA, 5 GND

P5: -RTR RUN (5), -ACC (7), -BRAKE (6), -HS SCL (9), -RTR RDY (4), -IGBT FAULT (3), -AUTO OFF INH (1), -BATT FAULT (2), -BATT TEST (8), HI MA (10)

6J3: PT CRL 7, -KV UP 15, -KV DWN 8, HT-C DAT 3, HT-C CLK 6, -EXP 1, C-HT DAT 2, C-HT CLK 5, -PREP 4

3TS1: BUCKY SPLY 2, BUCKY SPLY 9, AUX BUCKY SPLY 46, -BUCKY 1 MOTION 5, -BUCKY 2 MOTION 12, BUCKY 1 DR 4, BUCKY 2 DR 11, 0 VAC 3, 0 VAC 10, BUCKY 1 MOT RTN 6, GND 7, BUCKY 2 MOT RTN 13, GND 14, SUPPLY (BUCKY 1) 1, SUPPLY (BUCKY 2) 8

-12V, +12V, +5V

-PREP (sheet 4), -CHRG (sheet 4), RTR I (sheet 7)

See NOTE 2: -T2 SCL (sheet 7) — -TUBE 2 SCL (sheet 7); -START (sheet 7); -CHRG DR (sheet 1)

to 6J1-8 (sheet 3); -KV DR1, -KV DR2 (sheet 4)

See NOTE 2: -ACC, -BRAKE

-IGBT FAULT (sheet 4); -BATT FAULT, -BATT TEST (sheet 1)

0 VAC

FILAMENT DRIVER BOARD 3A3

P1: 5 -FIL DR1, 6 -FIL DR2, 3 +5V, 8 DELAYED +24V, 7 FIL I, 1 GND

P3: FIL PREHEAT (2), FIL RTN (1), FIL SUP (4)

P2: 4 +SUPPLY, 1 -SUPPLY

DELAYED +24V, +5V

(sheet 1): +SUPPLY, -SUPPLY

INTERFACE CONTROL BOARD 3A2

P1: 7 -PWR ON, 8 -PWR OFF, 4 PT CRL, 3 ON, 2 GND, 6 +12V, 1 GND

to 6J2: -PWR ON, -PWR OFF

P6: 4 I/F GND, 3 +11V PERM, 1 -PWR OFF, 2 -PWR ON

P3: 4 +24V, 2 GND, 1 GND

P4: 12 -BUCKY 1 DR CMD, 13 -BUCKY 2 DR CMD, 9 BUCKY SPLY, 5 AUX BUCKY SPLY, 11 -BUCKY 1 MOTION, 10 -BUCKY 2 MOTION, 8 BUCKY 1 DR, 7 BUCKY 2 DR, 18 -TUBE 2 SCL, 19 -FIL 1 SCL, 17 FIL PREHEAT, 14 FIL RTN, 22 -FIL 1 ACK

(sheet 2): -BUCKY 1 DR CMD, -BUCKY 2 DR CMD

+12V, +24V

P5: 6 +5V, 8 +24V, 5 +24V, 16 +24V, 2 DELAYED +24V, 1 -LINE CONT, 4 +5V OUT, 12 DISCHARGE 1, 14 DISCHARGE 1 RTN, 13 DISCHARGE 2, 10 DISCHARGE 2 RTN, 9 GND

Controlled by -LINE CONT

+5V, +24V, +24V-PSU, DELAYED +24V

-LINE CONT (sheet 1)

from LVDC **3PS1**: +5V OUT (sheet 4)

DISCHARGE 2, DISCHARGE 2 RTN (sheet 4)

P3: LINE SYNC 3

P2: -ROOM LIGHT 2, IC SPLY 1 3, IC SPLY 2 5, PT SPLY 1, IC GND 7, ROOM LIGHT SW 4, ROOM LIGHT SUP 6

P4: -BUCK EXP 6, 115 VAC 2, 0 VAC 1, 115 VAC SW 3, See NOTE 1: FIL 1 RTN 15, FIL 2 RTN 16, SOL DR 20

115 VAC, 0 VAC, 115 VAC SW

J2-18, J2-19, J2-8 — to J2 connector of the ATP CONSOLE board

6J3: -BUCKY 1 DR CMD (sheet 3) 14, -BUCKY 2 DR CMD (sheet 3) 11, LINE SYNC 9, -BUCKY EXP 12, GND 16

3TS1: PT SPLY 39, IC GND 42, ROOM LIGHT SW 48, ROOM LIGHT SUP 47, -ROOM LIGHT 24, -DOOR 22, DOOR RTN 23, GND 18

HT TRANSFORMER 9HT1

J1: K HI MA, A GND, B +KV, C -KV, D +MA, E -MA, F FIL 1 RTN, H FIL 2 RTN, G FIL SUP, N SW CMD, U SW1, V SW2, J -HT INTLK

GND

mA test posts: Red, Black

P1 HT DR1 (sheet 4)

P3 HT DR2 (sheet 4)

SHLD COM (sheet 4)

-BRAKE (sheet 7), -ACC (sheet 7)

6J1 (See NOTE 2): +24V 10, ERROR DRAC (sheet 3) 8, 9, -RTR RUN 1, -TUBE 1 RTR 2, -TUBE 2 RTR 3, -HS SCL 4, -RTR RDY 5, -SF PREP (sheet 5 & 6) 6, -FL EXP 7, -PREP (sheet 3) 12, GND 11

6J3: OPEN - for FL tube, GND - for RAD tube — -HT INTLK 13

NOTE 1 .- Only for one FL tube:

Wires FIL 1 RTN (P4-15) and FIL 2 RTN (P4-16), are factory inverted on the INTERFACE CONTROL Board and 6J3-13 is disconnected and insulated

NOTE 2.- For High Speed Version:

-T2 SCL signal is shortcircuited with -TUBE 2 SCL signal.

-ACC and -BRAKE signals for Low Speed Version becomes -TUBE 1 RTR and -TUBE 2 RTR respectively.

6J1 connector used only for High Speed version (see LV-DRAC documentation).

REV	DESCRIPTION	ISSUED BY	DATE
I	NC 13/015	R. Asenjo	21/01/13
H	NC 12/466	R. Asenjo	08/11/12
G	CN 10/533	F. DIAZ	14/04/11
F	CN 10/226	F. GARCIA	17/05/10
E	CN 06/159	F. GARCIA	08/08/06
D	NE 06/166	F. GARCIA	07/07/06

	NAME	DATE
DRAWING	F.GARCIA	14/03/05
REVISED	A.DIAZ	14/03/05

SHEET / OF: 3/9

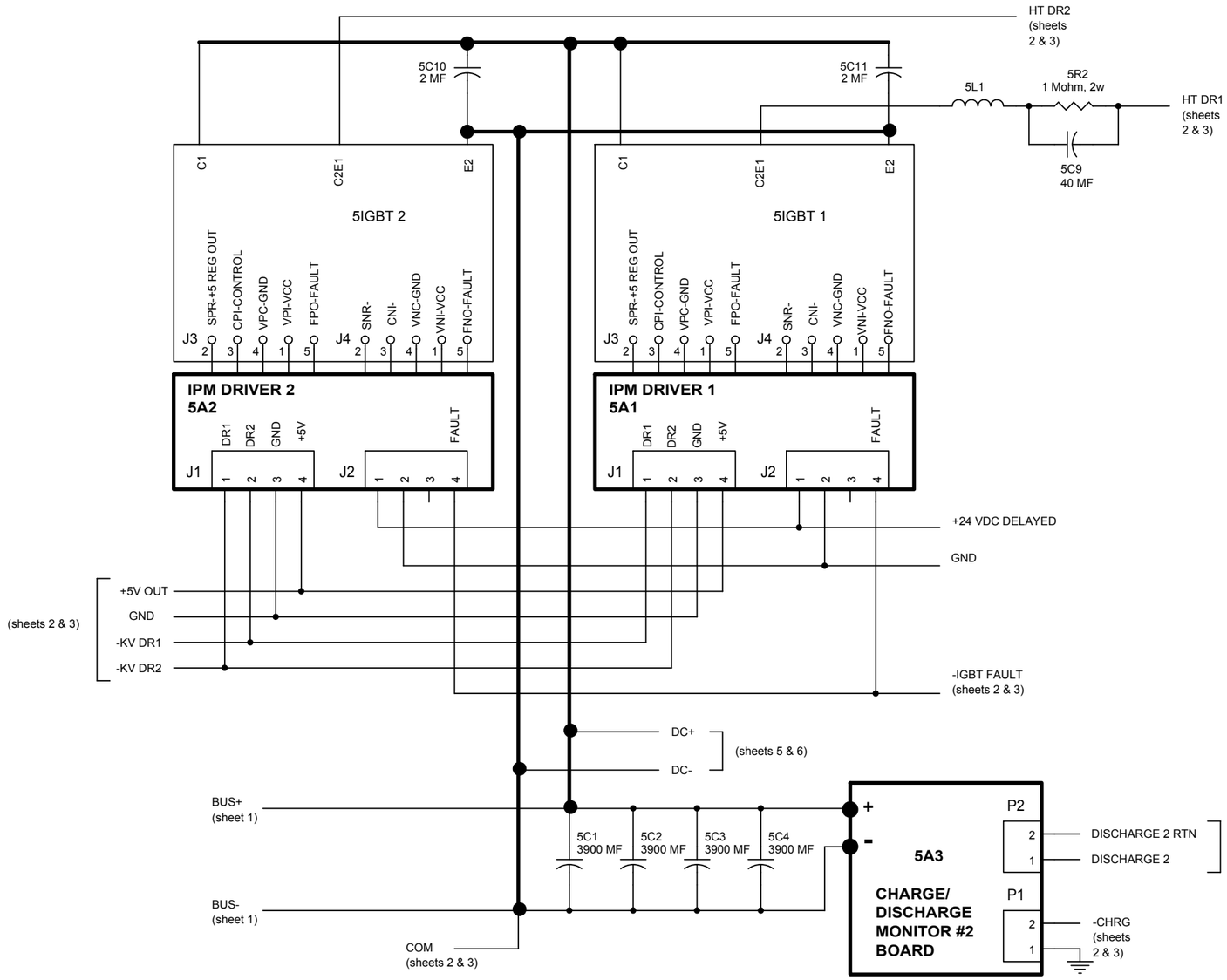
SEDECAL

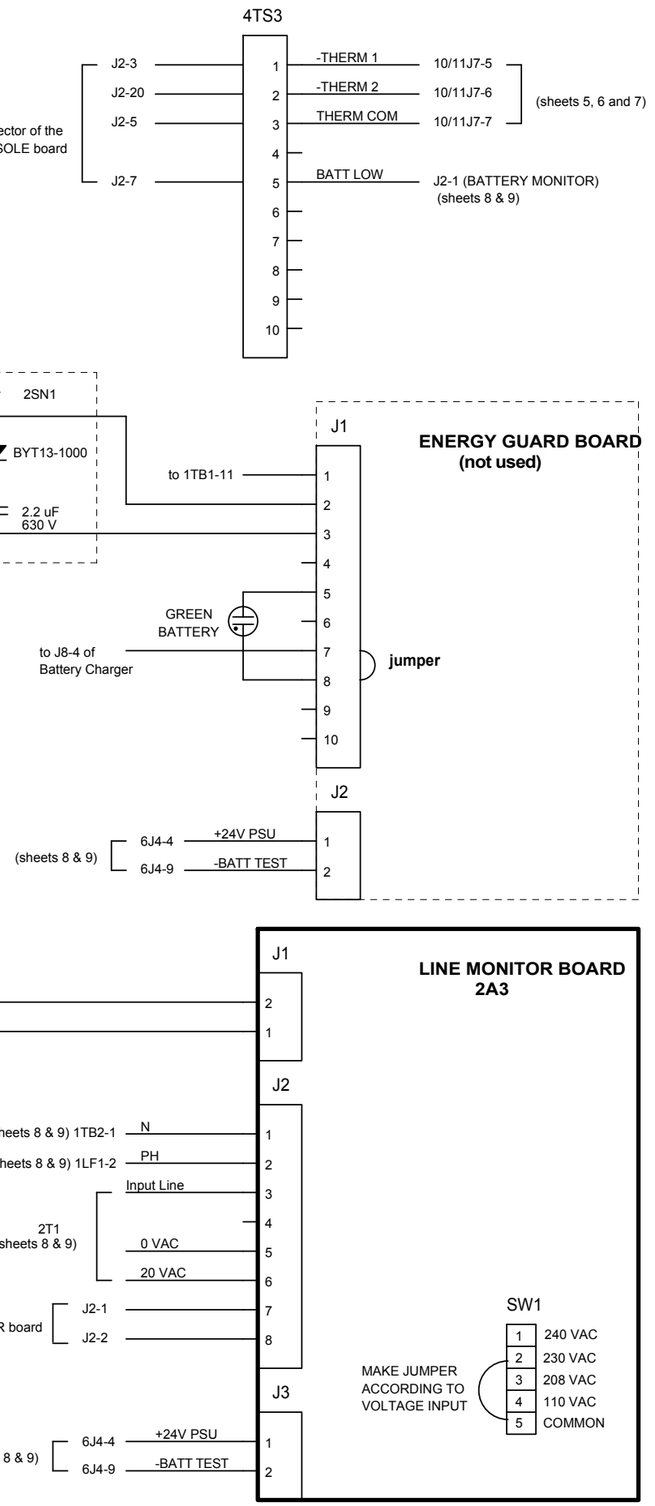
54302013

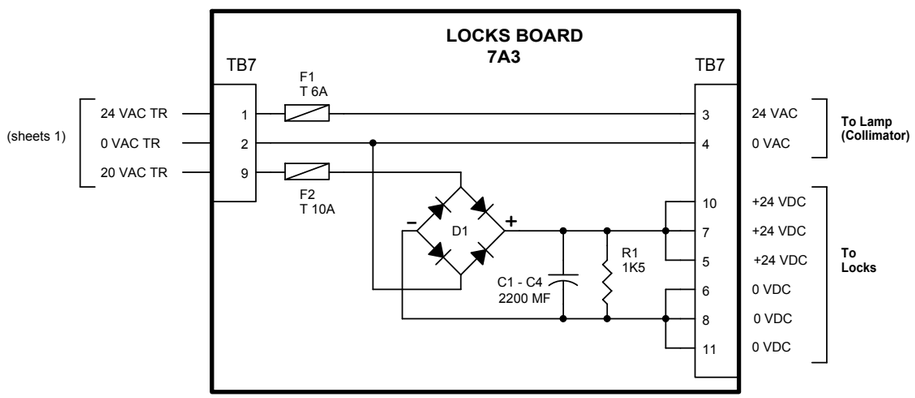
H G F E D C I REV

PSU (without Stand-Alone)

ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)







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	NAME	DATE
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REVISED	A.DIAZ	14/03/05

SHEET / OF: 4/9

SEDECAL

54302013

H G F E D C I REV

PSU (without Stand-Alone)

ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)

CONTROL DRAC PCB (A3243-03)

11A1

Note:
See DELAYED SWITCH-OFF board on sheet 5 for the connections (*) added to J4

Cable to High Speed Starter connection 6J1 (sheets 2 & 3)

		J4		J3
	* GND	1	GND	+5 VDC 1
6J1-8	ERROR DRAC	2	-ERROR CODE	+5 VDC 2
		3	NC	+5 VDC 3
6J1-5	-RTR RDY	4	RDY 1	+5 VDC 4
	* RDY 1 OUT	5	RDY 1 OUT	GND 5
	* +15 VDC	6	+15 VDC	GND 6
6J1-11	GND	7	RDY 1 RTN	GND 7
		8	NC	GND 8
		9	SPARE 2	+15 VDC 9
		10	SPARE 2 RTN	+15 VDC 10
		11	SPARE 1	+15 VDC 11
		12	SPARE 1 RTN	+15 VDC 12
6J1-10	+24 VDC	13	SF	-15 VDC 13
6J1-6	-SF PREP	14	SF RTN	-15 VDC 14
		15	FL	V UNR 15
6J1-7	-FL EXP	16	FL RTN	V UNR 16
		17	HS	PRECH IF 17
6J1-4	-HS SCL	18	HS RTN	PRECH IF 18
		19	ST	+5 VDC 19
6J1-1	-RTR RUN	20	ST RTN	+5 VDC 20
		21	T3	T3 IF 21
	* T3 RTN	22	T3 RTN	T3 IF 22
		23	T2	T2 IF 23
6J1-3	-TUBE 2 RTR	24	T2 RTN	T2 IF 24
	* T2 RTN			T1 IF 25
				T1 IF 26

Ferrite Core — Ribbon Cable — Ferrite Core

J1		J1
		+5 VDC 1
		+5 VDC 2
		+5 VDC 3
		+5 VDC 4
		GND 5
		GND 6
		GND 7
		GND 8
		+15 VDC 9
		+15 VDC 10
		+15 VDC 11
		+15 VDC 12
		-15 VDC 13
		-15 VDC 14
		V UNR 15
		V UNR 16
		PRECH IF 17
		PRECH IF 18
		+5 VDC 19
		+5 VDC 20
		T3 IF 21
		T3 IF 22
		T2 IF 23
		T2 IF 24
		T1 IF 25
		T1 IF 26

INTERFASE DRAC-HF PCB (A3240-05)

11A2

AUXILIARY TRANSFORMER

MAIN TRANSFORMER

CLAMPING

11K2 **11K3**

VR1 V480LA20A

F1 T 6.25A

Note:
Connections to 11TS2 of the Generator Cabinet

J1		J5
AUX	4	1
		2
COM	3	4
SHL	2	3
PRIN	1	

COM T1
AUX T1
MAIN T1
Note

J2		J2
V-	1	-DC OUT 5
V+	2	+DC OUT 4
		GND 3
		+DC IN 2
		-DC IN 1

Ferrite Core — Ferrite Core

from DC voltage Bus (sheet 4)

Connections ( ) for only one FL tube

11TS2

	MAIN T1	1 (9)
	AUX T1	2 (10)
	COM T1	3 (11)
	-THERM 1	4 (12)
	THERM COM	5 (13)
See Note	FAN 1	6 (14)
	0 VAC	7 (15)
	GND	8 (16)
	115 VAC SW	17
	240 VAC SW	18

Note:
Connect FAN to 11TS2-17 or 11TS2-18 as required.

+24 VDC

J4		
	11K2 A1	11K3 A1
K1	1	A2 A2
	2	
K3	3	

J3		
240 VAC SW	1	to 11TS2
0 VAC	2	

Note.- 11J7 is an aerial connector

11J7

	+24V DELAYED	1	+24 VDC
	GND	3	
	240 VAC SW	4	to 11TS2
	115 VAC SW	2	
(sheet 4) 4TS3-1	-THERM 1	5	
4TS3-3	THERM COM	7	
	0 VAC	8	

THIS SHEET ONLY APPLIES TO HIGH SPEED STARTER FOR ONLY ONE X-RAY TUBE (OPTIONAL)

REV	DESCRIPTION	ISSUED BY	DATE
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H	NC 12/466	R. Asenjo	08/11/12
G	CN 10/533	F. DIAZ	14/04/11
F	CN 10/226	F. GARCIA	17/05/10
E	CN 06/159	F. GARCIA	08/08/06
D	NE 06/166	F. GARCIA	07/07/06

	NAME	DATE
DRAWING	F.GARCIA	14/03/05
REVISED	A.DIAZ	14/03/05

SHEET / OF: 5/9

54302013

H G F E D C I ← REV

SEDECAL

PSU (without Stand-Alone)

ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)

CONTROL DRAC PCB (A3243-03)

11A1

J3

1	+5 VDC	+5 VDC
2	+5 VDC	+5 VDC
3	+5 VDC	+5 VDC
4	+5 VDC	+5 VDC
5	GND	GND
6	GND	GND
7	GND	GND
8	GND	GND
9	+15 VDC	+15 VDC
10	+15 VDC	+15 VDC
11	+15 VDC	+15 VDC
12	+15 VDC	+15 VDC
13	-15 VDC	-15 VDC
14	-15 VDC	-15 VDC
15	V UNR	V UNR
16	V UNR	V UNR
17	PRECH IF	PRECH IF
18	PRECH IF	PRECH IF
19	+5 VDC	+5 VDC
20	+5 VDC	+5 VDC
21	T3 IF	T3 IF
22	T3 IF	T3 IF
23	T2 IF	T2 IF
24	T2 IF	T2 IF
25	T1 IF	T1 IF
26	T1 IF	T1 IF

Ferrite Core — Ribbon Cable — Ferrite Core

J4

	1	GND
6J1-8 ERROR DRAC	2	-ERROR CODE
	3	NC
6J1-5 -RTR RDY	4	RDY 1
	5	RDY 1 OUT
	6	+15 VDC
6J1-11 GND	7	RDY 1 RTN
	8	NC
	9	SPARE 2
	10	SPARE 2 RTN
	11	SPARE 1
	12	SPARE 1 RTN
6J1-10 +24 VDC	13	SF
6J1-6 -SF PREP	14	SF RTN
	15	FL
6J1-7 -FL EXP	16	FL RTN
	17	HS
6J1-4 -HS SCL	18	HS RTN
	19	ST
6J1-1 -RTR RUN	20	ST RTN
	21	T3
	22	T3 RTN
	23	T2
6J1-3 -TUBE 2 RTR	24	T2 RTN

Cable to High Speed Starter connection 6J1 (sheets 3 & 4)

J1

AUX	4	AUX T2 / AUX T1 } Note
COM	3	COM T1 / COM T2 } Note
SHL	2	
PRIN	1	MAIN T2 / MAIN T1 } Note

AUXILIARY TRANSFORMER

MAIN TRANSFORMER

CLAMPING

11K2 R2 R1 — 2 1

11K3 R2 R1 — 2 1

11KT1 R2 R1 — 2 1

11K2 4 3 — R4 R3

11K3 R4 R3 — 4 3

11KT1 R4 R3 — 4 3

VR1 V480LA20A

F1 T 6.25A

Note:
Connections to 11TS2 of the Generator Cabinet

J2

Ferrite Core

V-	1	
V+	2	

Ferrite Core

5	-DC OUT	
4	+DC OUT	
3	GND	
2	+DC IN	from DC voltage Bus (sheet 4) DC+
1	-DC IN	DC-

J5

1	
2	
4	
3	

INTERFASE DRAC-HF PCB (A3240-05)

11A2

J1

1	+5 VDC	+5 VDC
2	+5 VDC	+5 VDC
3	+5 VDC	+5 VDC
4	+5 VDC	+5 VDC
5	GND	GND
6	GND	GND
7	GND	GND
8	GND	GND
9	+15 VDC	+15 VDC
10	+15 VDC	+15 VDC
11	+15 VDC	+15 VDC
12	+15 VDC	+15 VDC
13	-15 VDC	-15 VDC
14	-15 VDC	-15 VDC
15	V UNR	V UNR
16	V UNR	V UNR
17	PRECH IF	PRECH IF
18	PRECH IF	PRECH IF
19	+5 VDC	+5 VDC
20	+5 VDC	+5 VDC
21	T3 IF	T3 IF
22	T3 IF	T3 IF
23	T2 IF	T2 IF
24	T2 IF	T2 IF
25	T1 IF	T1 IF
26	T1 IF	T1 IF

11TS2

MAIN T1	1	
AUX T1	2	
COM T1	3	
-THERM 1	4	
THERM COM	5	
FAN 1	6	
0 VAC	7	
GND	8	
MAIN T2	9	
AUX T2	10	
COM T2	11	
-THERM 2	12	
THERM COM	13	
FAN 2	14	
0 VAC	15	
GND	16	

+24 VDC

11KT1 A1 A2

11K2 A1 A2

11K3 A1 A2

J4

K1	1
	2
K3	3

J3

240 VAC SW	1	to 11TS2
0 VAC	2	

Note.- 11J7 is an aerial connector

11J7

+24V DELAYED	1	+24 VDC
240 VAC SW	4	
115 VAC SW	2	
GND	3	
4TS3-1 -THERM 1	5	
(sheet 4) 4TS3-2 -THERM 2	6	to 11TS2
4TS3-3 THERM COM	7	
0 VAC	8	

11TS2

	18	
	17	

11KT1

tube 2 — 62 61 — FAN 2
tube 1 — 54 53 — FAN 1
} to 11TS2

for external interface

11KT1

TUBE 2 SCL	72	71
TUBE 1 SCL	84	83
TUBE SCL COMM		

THIS SHEET ONLY APPLIES TO HIGH SPEED STARTER FOR ONLY TWO X-RAY TUBES (STANDARD)

REV	DESCRIPTION	ISSUED BY	DATE
I	NC 13/015	R. Asenjo	21/01/13
H	NC 12/466	R. Asenjo	08/11/12
G	CN 10/533	F. DIAZ	14/04/11
F	CN 10/226	F. GARCIA	17/05/10
E	CN 06/159	F. GARCIA	08/08/06
D	NE 06/166	F. GARCIA	07/07/06

	NAME	DATE
DRAWING	F.GARCIA	14/03/05
REVISED	A.DIAZ	14/03/05

SHEET / OF 6/9

54302013

H G F E D C I REV

SEDECAL

PSU (without Stand-Alone)

ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)

THIS SHEET ONLY APPLIES TO LOW SPEED STARTER

NOTE.- 10T3, 10C5-1, and 10R4-1 for 330 VAC Stator

Note.- Capacitor 10C5 could be 40 uF depending on tube used

10C5-1 15 uF

10C5-2 30 uF

10R4-1 1 Mohm, 2w

10R4-2 1 Mohm, 2w

30 uF

15 uF

115 VAC SW

240 VAC SW

for external interface

TUBE 1 SCL

TUBE 2 SCL

TUBE SCL COM

NOTE.- Use Tube 2 connections for FL tube

Note.- 10J7 and 10J8 are aerial connectors

10J8

(sheet 1)

230 VAC RTR

60 VAC RTR

0 VAC RTR

TB1

KACC K1-1

F1 T 6A

10T3

47 2w

10RC1 100 nF 1 KV

330V

220V

0V

10LF2

10K1

T1/T2 COMM (to 10TS2)

TB2

T1 Tube 1

T2 Tube 2

KCT K2-1

T2

laux

T1

Imain

TB1

10 11 12 13 14 15 16 21 22 23 24 25 26 27 28

TB3

T2 Tube 2

T1 Tube 1

KCT K2-3

TB4

T2 Tube 2

T1 Tube 1

KCTRR K5-1

KCTRR K5-3

J1

9 10 11 12

KCTR K4-2

KBR K3-2

KBR K3-1

CR6 KBU4J

KCTR K4-1

KCTR K4-4

TB1

17 18 19 20

10TS2

6	FAN 1
14	FAN 2
3	COM T1
11	COM T2
7	0 VAC
15	0 VAC
5	THERM COMM
13	THERM COMM
4	-THERM 1
12	-THERM 2
2	AUX T1
10	AUX T2
1	MAIN T1
9	MAIN T2
8	GND
16	GND

T1/T2 COMM

0 VAC

THERM COM

+24V DELAYED

10K1

10R5 475 2w

+24V

KCTR K4

CR4 1N4007

KCT K2-2

+24V

KCTRR K5

CR5 1N4007

KCTR K4-3

LF-RAC BOARD 10A1

CR10 VM48

CR11 1N4007

CR12 1N4007

+24V

TP2 +24V

Q2 2N4401

C4 100 uF 35V

C3 100nF

R8 1K5

CR8 1N4007

CR9 VM48

CR7 1N4007

Q1 2N4401

C2 100nF

R7 1K5

TP1 GND

KCTRR K5-2

DS4 HLMP1700

KACC K1-2

R4 4K99

R5 4K99

TP3 RTRI

R6 475

C1 22 uF

J1

1 +24V DELAYED

2 GND

4

3

5

R1 4K75 CR1 1N4007 KACC K1 DS1 HLMP1700

R2 4K75 CR2 1N4007 KCT K2 DS2 HLMP1700

R3 4K75 CR3 1N4007 KBR K3 DS3 HLMP1700

+24V

J1

6 7 8

10J7

240 VAC SW	4	240 VAC SW
115 VAC SW	2	115 VAC SW
+24V DELAYED	1	+24V DELAYED
GND	3	GND
from HT CONTROL board -START	9	
-ACC	10	
-T2 SCL	11	
-BRAKE	12	
RTRI	13	
-TUBE 2 SCL	14	
0 VAC	8	0 VAC
(sheet 4) 4TS3-1 -THERM 1	5	-THERM 1
4TS3-2 -THERM 2	6	-THERM 2
4TS3-3 THERM COM	7	THERM COM

to 10TS2

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REVISED	A.DIAZ	14/03/05

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54302013

H G F E D C I ← REV

PSU (without Stand-Alone)

ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)

NOTE:
9 Amp. BATTERIES

BATTERY 8TRAY 5 — 8J5 — 360 VDC, 336 VDC, 312 VDC — 8J10

BATTERY 8TRAY 4 — 8J4 — 288 VDC, 264 VDC, 240 VDC — 8J9

BATTERY 8TRAY 3 — 8J3 — 216 VDC, 192 VDC, 168 VDC — 8J8

BATTERY 8TRAY 2 — 8J2 — 144 VDC, 120 VDC, 96 VDC — 8J7

BATTERY 8TRAY 1 — 8J1 — 72 VDC, 48 VDC, 24 VDC, 0 VDC — 8J6

BATTERY CHARGER BOARD (A3285-02)
2A1

J9: 1, 2, 3

J1:
16 0 VDC
15 28 VDC
14 56 VDC
13 84 VDC
12 112 VDC
11 140 VDC
10 168 VDC
9 196 VDC
8 224 VDC
7 252 VDC
6 280 VDC
5 308 VDC
4 336 VDC
3 364 VDC
2 392 VDC
1 420 VDC

J8: 1 TB1-12, 2 V. BATT, 3 0 V, 4

BAT. CHARGER TRANSFORMER 2T1

J4 — SEC. TRANSF.: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
J6 — SEC. TRANSF.: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

20V sec 16 20V 0V
28V sec 15 360V 0V — 240V, 230V
28V sec 9 216V 0V — 208V
28V sec 8 192V 0V — 110V
28V sec 1 24V 0V — 0V

0 VAC — J2-5
20 VAC — J2-6
Input Line — J2-3
to J2 connector of the LINE MONITOR board (sheet 4)

* Connect according to the Input Voltage Line

to J2 and J3 connectors of the LINE MONITOR board (sheet 4)

J2: PREP 1, 2
J2-2
J2-7
J2-8
J3-1
J3-2
J2-1

1TB1
to J8.1 of Battery Charger — 12
to J1.1 of Energy Guard — 11
10
9
8
7
5 N
4 PH — TO TABLE
6 GND
2 N
1 PH — LINE VOLTAGE
3 GND

EMERGENCY STOP (optional)

GREEN LINE
1LF1 (1 3 / 2 4)
1SW1 (3 5 / 4 6)
7 1K22 8

1TB2
1 2 3 4 5 6
JUMPERS
V250LA20
EPC0S 3000-03

6J4
3 +24V UNR
4 +24V PSU
9 -BATT TEST
6 -PWR ON
7 -PWR OFF
8 +11V PERM
10 BAT ST1
2 0 VAC OUT
1 VAC OUT
11 BAT ST2
12 BAT ST3
15 GND

BATTERY MONITOR BOARD (A3580-01)

J2: 4 GND, 3 RX, 2 TX, 1 BATT LOW
+5V
to TS3-5 — BATT LOW

J1: 6 +5V, 5, 4, 3, 2, 1

???
to J1-7 of the ENERGY GUARD board

6J10
6F1 — T 35A 500 VDC
BAT- } (sheet 1)
BAT+ }

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	NAME	DATE
DRAWING	F.GARCIA	14/03/05
REVISED	A.DIAZ	14/03/05

SHEET / OF: 8/9

SEDECAL

54302013

H G F E D C I ← REV

PSU (without Stand-Alone)
ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)

NOTE:
17 Amp. BATTERIES

8J16 — 8J8 — 360 VDC — BATTERY 8TRAY 8
8J15 — 8J7 — 336 VDC, 312 VDC — BATTERY 8TRAY 7
8J14 — 8J6 — 288 VDC, 264 VDC — BATTERY 8TRAY 6
8J13 — 8J5 — 240 VDC, 216 VDC — BATTERY 8TRAY 5
8J12 — 8J4 — 192 VDC, 168 VDC — BATTERY 8TRAY 4
8J11 — 8J3 — 144 VDC, 120 VDC — BATTERY 8TRAY 3
8J10 — 8J2 — 96 VDC, 72 VDC — BATTERY 8TRAY 2
8J9 — 8J1 — 48 VDC, 24 VDC, 0 VDC — BATTERY 8TRAY 1

6J10 — 6F1 — T 35A 500 VDC — BAT- / BAT+ } (sheet 1)

BATTERY CHARGER BOARD (A3285-02)

2A1

J9: 1, 2, 3

J1:
16 0 VDC
15 28 VDC
14 56 VDC
13 84 VDC
12 112 VDC
11 140 VDC
10 168 VDC
9 196 VDC
8 224 VDC
7 252 VDC
6 280 VDC
5 308 VDC
4 336 VDC
3 364 VDC
2 392 VDC
1 420 VDC

J8: 1 TB1-12 (V. BATT), 2 V. BATT, 3 0 V, 4

J4 — SEC. TRANSF.: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

J6 — SEC. TRANSF.: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

J2: PREP 1, 2 — J2-2, J2-7, J2-8, J3-1, J3-2, J2-1

to J2 and J3 connectors of the LINE MONITOR board (sheet 4)

BAT. CHARGER TRANSFORMER 2T1

20V, sec 16, 20V, 0V
28V, sec 15, 360V, 0V — 240V, 230V
28V, sec 9, 216V, 0V — 208V
28V, sec 8, 192V, 0V — 110V
28V, sec 1, 24V, 0V — 0V

0 VAC — J2-5
20 VAC — J2-6
Input Line — J2-3
to J2 connector of the LINE MONITOR board (sheet 4)

* Connect according to the Input Voltage Line

BATTERY MONITOR BOARD (A3580-01)

J2: 4 +5V, 3, 2 BATT LOW, 1 — to TS3-5
J1: 6 +5V, 5, 4, 3, 2, 1 — to J1-7 of the ENERGY GUARD board

1TB1
to J8.1 of Battery Charger — 12
to J1.1 of Energy Guard — 11
10
9
8
EMERGENCY STOP (optional)
7
5 N
4 PH — TO TABLE
6 GND
2 N
1 PH — LINE VOLTAGE
3 GND

GREEN LIGHT — 1LF1 — 1SW1 — 1K22

6J4
3 +24V UNR
4 +24V PSU
9 -BATT TEST
6 -PWR ON
7 -PWR OFF
8 +11V PERM
10 BAT ST1
2 0 VAC OUT
1 VAC OUT
11 BAT ST2
12 BAT ST3
15 GND

1TB2 — JUMPERS — V250LA20 — EPC0S 3000-03

REV	DESCRIPTION	ISSUED BY	DATE
I	NC 13/015	R. Asenjo	21/01/13
H	NC 12/466	R. Asenjo	08/11/12
G	CN 10/533	F. DIAZ	14/04/11
F	CN 10/226	F. GARCIA	17/05/10
E	CN 06/159	F. GARCIA	08/08/06
D	NE 06/166	F. GARCIA	07/07/06

	NAME	DATE
DRAWING	F.GARCIA	14/03/05
REVISED	A.DIAZ	14/03/05

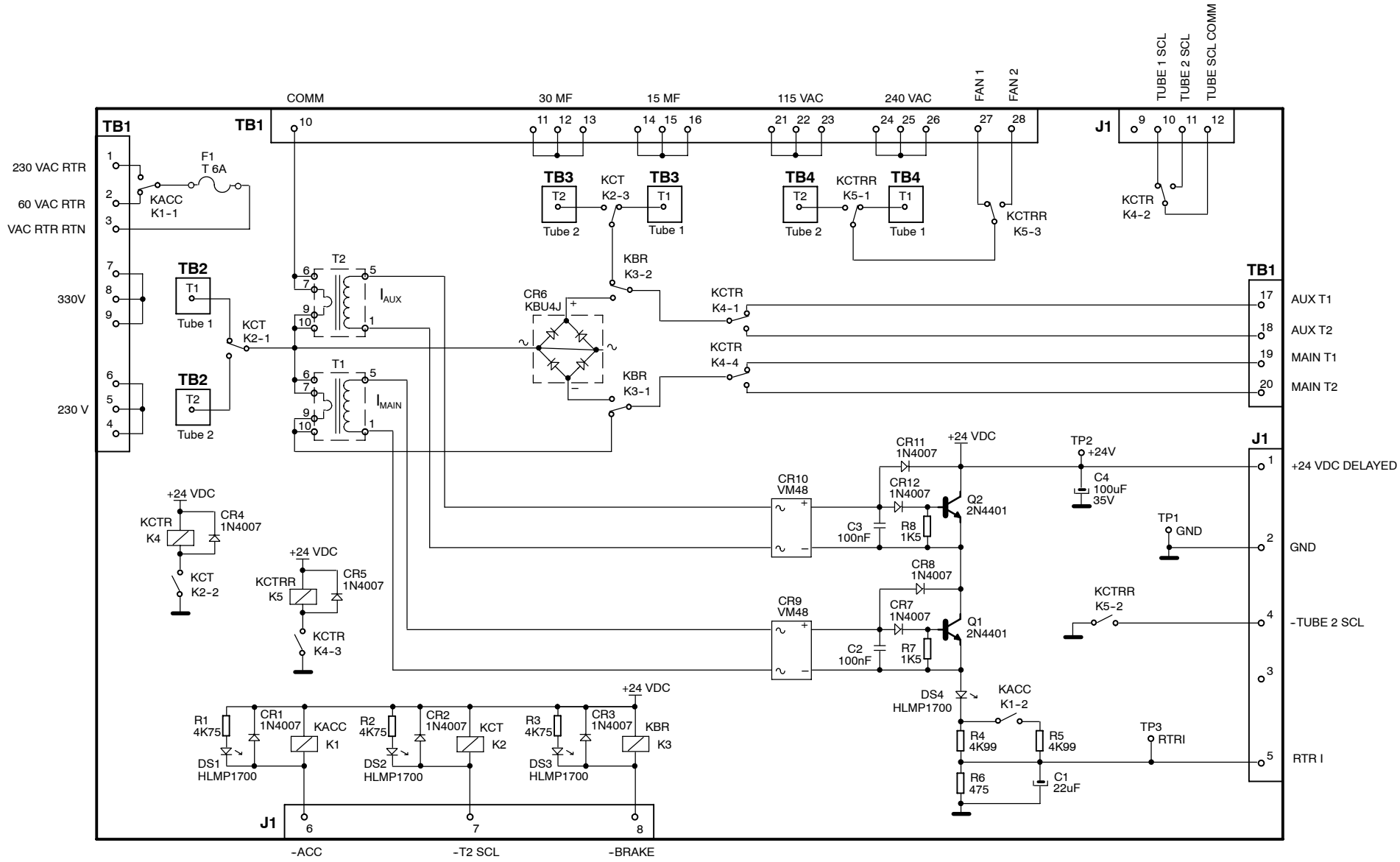
SHEET / OF: 9/9

SEDECAL

54302013

H G F E D C I ← REV

PSU (without Stand-Alone)
ESM COMPACT-LV DRAC/LF RAC GENERATOR (ONE/TWO X-RAY TUBES)



Note:
The LF-RAC shown in the Generator schematic (543020XX) is a basic documentation, only for interconnection purposes.
Follow this schematic for detailed component information of the LF-RAC board.

061109

REV	DESCRIPTION	ISSUED BY	DATE
B	CN 03/004	F. García	13/01/03

	NAME	DATE	SHEET / OF
DRAWING	F. GARCIA	21/09/97	1 / 1
REVISED	A. DIAZ	21/09/97	

DWG: A3096-02

B REV

SEDECAL

LF - RAC Board

(Line Frequency Rotatory Anode Controller)

(*) Use jumpers only for A3000-34 and 35

L	NC 09/266	F. Díaz	13/10/09
P	NC13/315	R. Hermosilla	30/09/13
O	NC 12/242	F. Díaz	04/06/12
N	NC 10/090	F. Díaz	24/02/10
M	NC 09/300	F. Díaz	04/11/09
REV	DESCRIPTION	ISSUED BY	DATE

	NAME	DATE
DRAWING	F. Díaz	04/11/09
REVISED	A. Díaz	04/11/09

SHEET / OF: 1/3

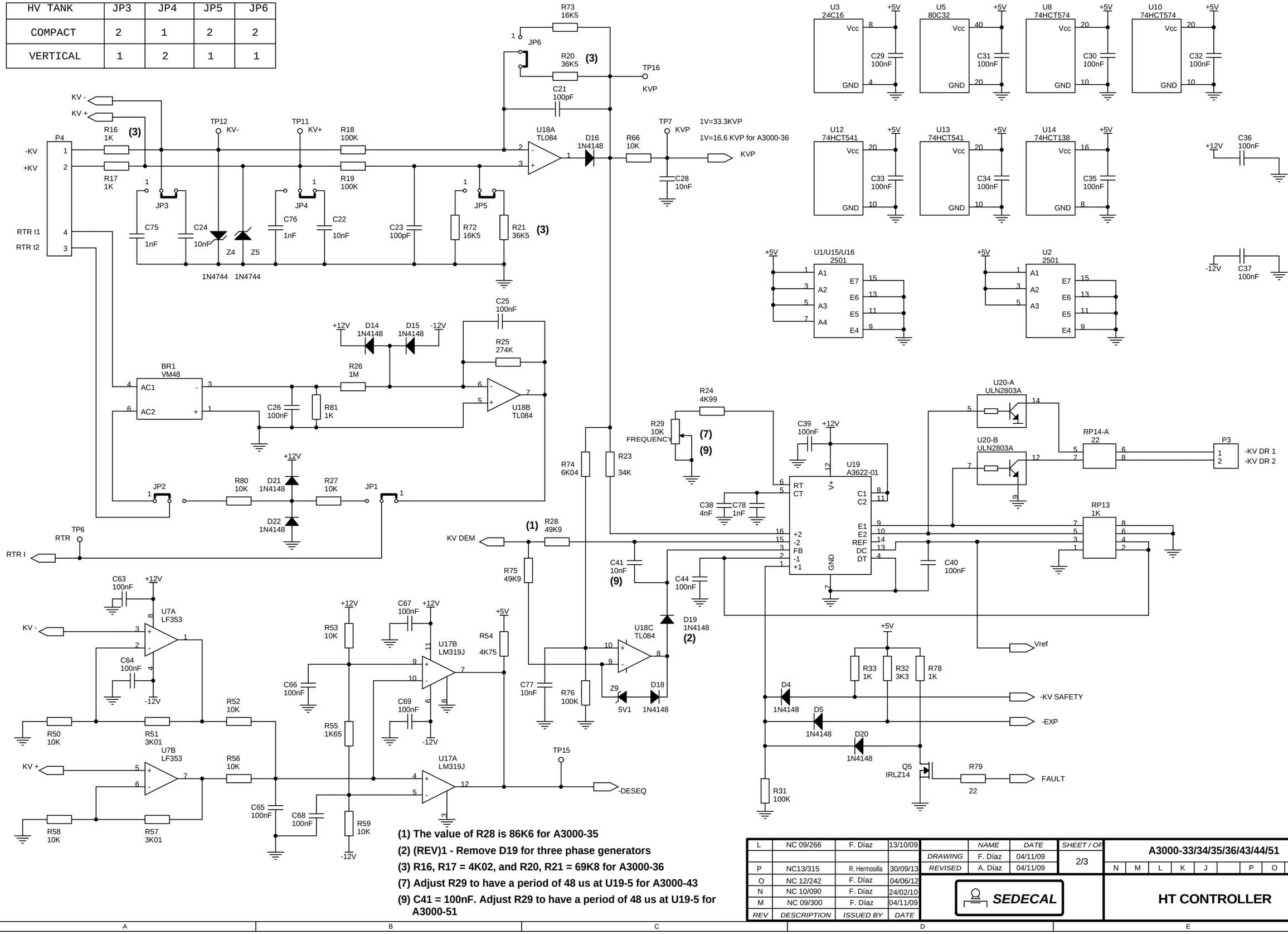
SEDECAL

A3000-33/34/35/36/43/44/51

N M L K J P O ← REV

HT CONTROLLER

HV TANK	JP3	JP4	JP5	JP6
COMPACT	2	1	2	2
VERTICAL	1	2	1	1



(1) The value of R28 is 86K6 for A3000-35

(2) (REV)1 - Remove D19 for three phase generators

(3) R16, R17 = 4K02, and R20, R21 = 69K8 for A3000-36

(7) Adjust R29 to have a period of 48 us at U19-5 for A3000-43

(9) C41 = 100nF. Adjust R29 to have a period of 48 us at U19-5 for A3000-51

REV	DESCRIPTION	ISSUED BY	DATE
L	NC 09/266	F. Díaz	13/10/09
P	NC13/315	R. Hermosilla	30/09/13
O	NC 12/242	F. Díaz	04/06/12
N	NC 10/090	F. Díaz	24/02/10
M	NC 09/300	F. Díaz	04/11/09

	NAME	DATE
DRAWING	F. Díaz	04/11/09
REVISED	A. Díaz	04/11/09

SHEET / OF: 2/3

SEDECAL

A3000-33/34/35/36/43/44/51

N M L K J P O ← REV

HT CONTROLLER

(4) R38, R39 = 226K, and R60, R62 = 25K5 for A3000-36

(5) R36, R37 = 200K, and R40 = 2K21 for A3000-44

(8) Remove Z6 and Z7 for A3000-44

1V = 10mA (FROM 10mA UP TO 80 mA)
1V = 100mA (FROM 100mA UP TO maximum mA)
1V = 20mA (FROM 10mA UP TO 80 mA)
1V = 200mA (FROM 100mA UP TO maximum mA)
A3000-44

P4
-mA
+mA
FIL I
GND
TP14 mA +
TP13 mA -
TP5 mA
TP8 FIL
R34 1K
R35 1K
(5) R36 100K
(5) R37 100K
R38 113K
R39 113K
R40 10K
R41 8K87
R42 1K
R43 1K54
R44 10K
R46 4K99
R48 10K
R49 20K
FREQUENCY
R60 12K7
R61 10K
R62 12K7
R67 10K
R68 10K
R69 205
C42 100nF 250V
C43 100nF 250V
C45 100nF
C46 100nF
C47 10nF
C48 10nF
C49 10nF
C50 1uF
C51 100nF
C52 10nF
C53 100nF
C54 100nF
C55 100nF
C56 100nF
C59 10nF
C60 100nF
C61 100nF
C62 100nF
C70 100nF
C71 100nF
C73 100nF
C74 100nF
D8 1N4148
D9 1N4148
D17 1N4148
Z6 1N4757A
Z7 1N4757A
V22 LM336AZ
U18D TL084
U21 AD536
U23 TL594
U24A DG300
U24B DG300
U24 DG300
U6 AD7837
U20-C ULN2803A
U20-D ULN2803A
RP4 1K
RP14-B 22
K1
P3
-FIL DR 1
-FIL DR 2
mA
KV DEM
DATA BUS
-L DAC
-WR DAC
-CS DAC
-mA SAFETY
+12V
-12V
+5V

REV	DESCRIPTION	ISSUED BY	DATE
L	NC 09/266	F. Díaz	13/10/09
P	NC13/315	R. Hermosilla	30/09/13
O	NC 12/242	F. Díaz	04/06/12
N	NC 10/090	F. Díaz	24/02/10
M	NC 09/300	F. Díaz	04/11/09

	NAME	DATE
DRAWING	F. Díaz	04/11/09
REVISED	A. Díaz	04/11/09

SHEET / OF 3/3

SEDECAL

A3000-33/34/35/36/43/44/51

N M L K J P O ← REV

HT CONTROLLER

NOTE 1: W1-A for version A3004-10/11/12, W1-B for version A3004-09

NOTE 1: W1-A para versión A3004-10/11/12, W1-B para versión A3004-09

NOTE 2: R7= 2K67 ohms for A3004-09/10
R7= 1K4 ohms for A3004-11
R7= 1K ohms for A3004-12

NOTE 2: R7= 2K67 ohms para A3004-09/10
R7= 1K4 ohms para A3004-11
R7= 1K ohms para A3004-12

GND
GND
+5V
+5V
-FIL DR1
-FIL DR2
FIL I
DELAY
+24V

P1

NTC T° R18

NTC T° R19

R20 100K 3W

DS1 Green

D2 1N4148

R2 100

Q2 SGP23N60UFD

C10 330uF/450V

C11 330uF/450V

+15V

R5 33

D4 UF4006

C6 100nF

+5V

+24V R17 3K74

TP9

C12 100nF

+5V

R16 2K

D7 UF4006

+24V R14 3K74

R13 2K

D6 UF4006

TP8

TP7

TP6

R15 10K

R12 10K

R9 10K

U5 HCPL2232

U3

HIN
LIN
SD
HO
VB
VS
VCC
LO
COM
VDD
VSS

IR2113

C8 1uF

C7 1uF

D1 1N4148

R1 100

Q1 SGP23N60UFD

C1 470nF/630Vdc

P3

FIL SUP
FIL PREHEAT
FIL RTN

T1

Pulse. PE-67300. 1 : 300

D5 BZX55C15V

R11 1K

R10 10K

U4 H11AA1

R6 2K43

W1 NOTE 1

1V=0.31 Arms

TP4

R7 NOTE 2

R8 10

+24V

C9 10uF/50V

U2

+IN +OUT
-IN -OUT

EC4BE13

TP3

+15V

R4 10K

C4 10uF/50V

C5 100nF

D3 1N4007

U1 LM7805

IN OUT GND

C3 10uF/50V

+5V

TP1

R3 10K

C2 100nF

TP2 TP5

P2

+SUPPLY
-SUPPLY

C13 1.5uF/250V-X2

L1

C15 10nF/250V-Y2

C14 10nF/250V-Y2

Ground stud

PCB 90068-04

REV	DESCRIPTION	ISSUED BY	DATE
F	NC 09/347	F. Díaz	26/11/09
E	NC 09/162	R. Asenjo	05/06/09
Db1	NC 06/251	F. Díaz	01/12/06
Cb1	NC 05/112		

	NAME	DATE
DRAWING	F. Díaz	26/10/04
REVISED	A. Díaz	26/10/04

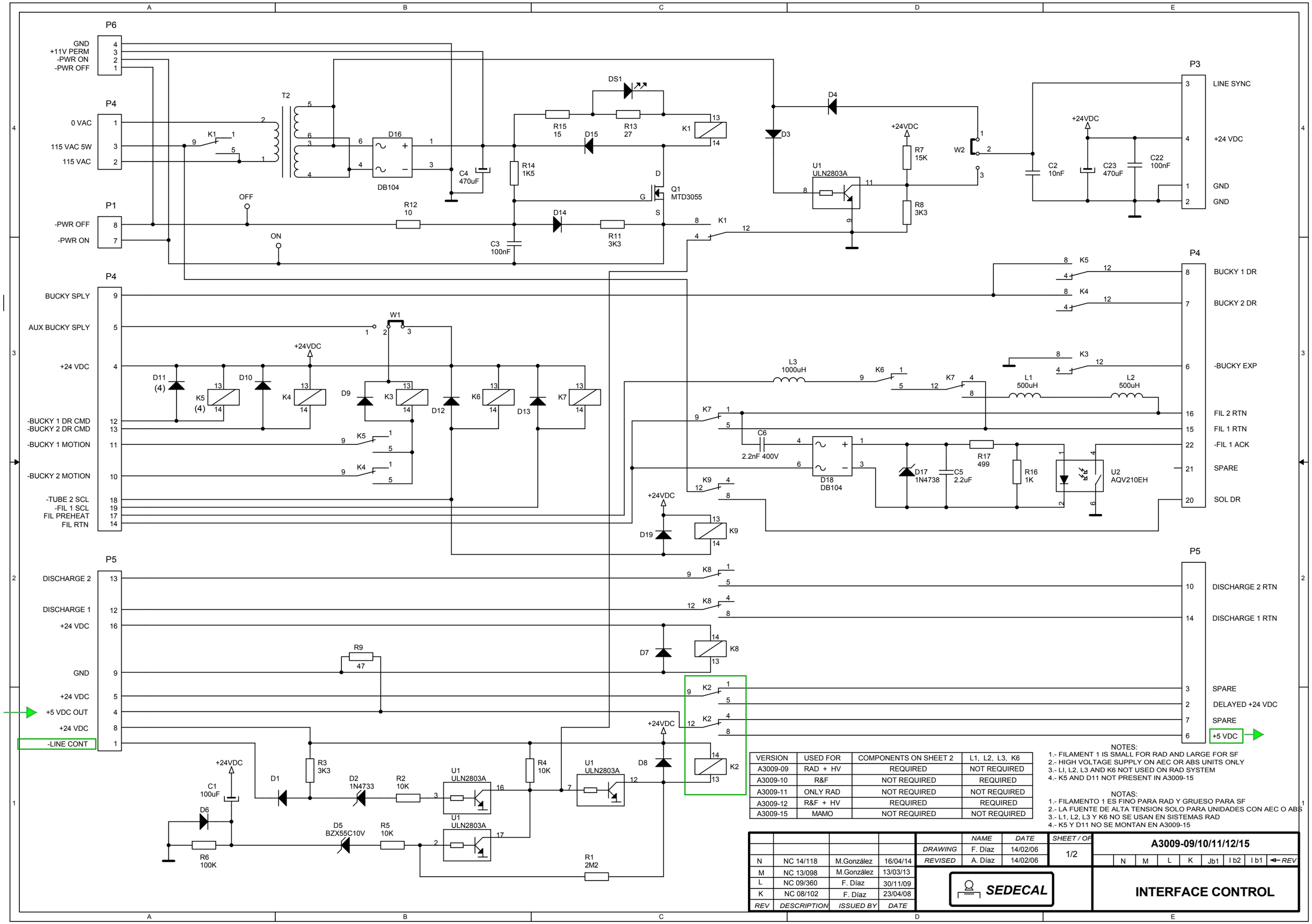
SHEET / OF: 1/1

SEDECAL

A3004-09/10/11/12

F | E | Db1 | Cb1 | Bb1 | Ab1 | b2 | b1 | REV

Filament Driver HC



VERSION	USED FOR	COMPONENTS ON SHEET 2	L1, L2, L3, K6
A3009-09	RAD + HV	REQUIRED	NOT REQUIRED
A3009-10	R&F	NOT REQUIRED	REQUIRED
A3009-11	ONLY RAD	NOT REQUIRED	NOT REQUIRED
A3009-12	R&F + HV	REQUIRED	REQUIRED
A3009-15	MAMO	NOT REQUIRED	NOT REQUIRED

NOTES:
1.- FILAMENT 1 IS SMALL FOR RAD AND LARGE FOR SF
2.- HIGH VOLTAGE SUPPLY ON AEC OR ABS UNITS ONLY
3.- LI, L2, L3 AND K6 NOT USED ON RAD SYSTEM
4.- K5 AND D11 NOT PRESENT IN A3009-15

NOTAS:
1.- FILAMENTO 1 ES FINO PARA RAD Y GRUESO PARA SF
2.- LA FUENTE DE ALTA TENSION SOLO PARA UNIDADES CON AEC O ABS
3.- L1, L2, L3 Y K6 NO SE USAN EN SISTEMAS RAD
4.- K5 Y D11 NO SE MONTAN EN A3009-15

REV	DESCRIPTION	ISSUED BY	DATE
N	NC 14/118	M.González	16/04/14
M	NC 13/098	M.González	13/03/13
L	NC 09/360	F. Díaz	30/11/09
K	NC 08/102	F. Díaz	23/04/08

	NAME	DATE
DRAWING	F. Díaz	14/02/06
REVISED	A. Díaz	14/02/06

SHEET / OF: 1/2

SEDECAL

A3009-09/10/11/12/15

N	M	L	K	Jb1	I b2	I b1	REV

INTERFACE CONTROL

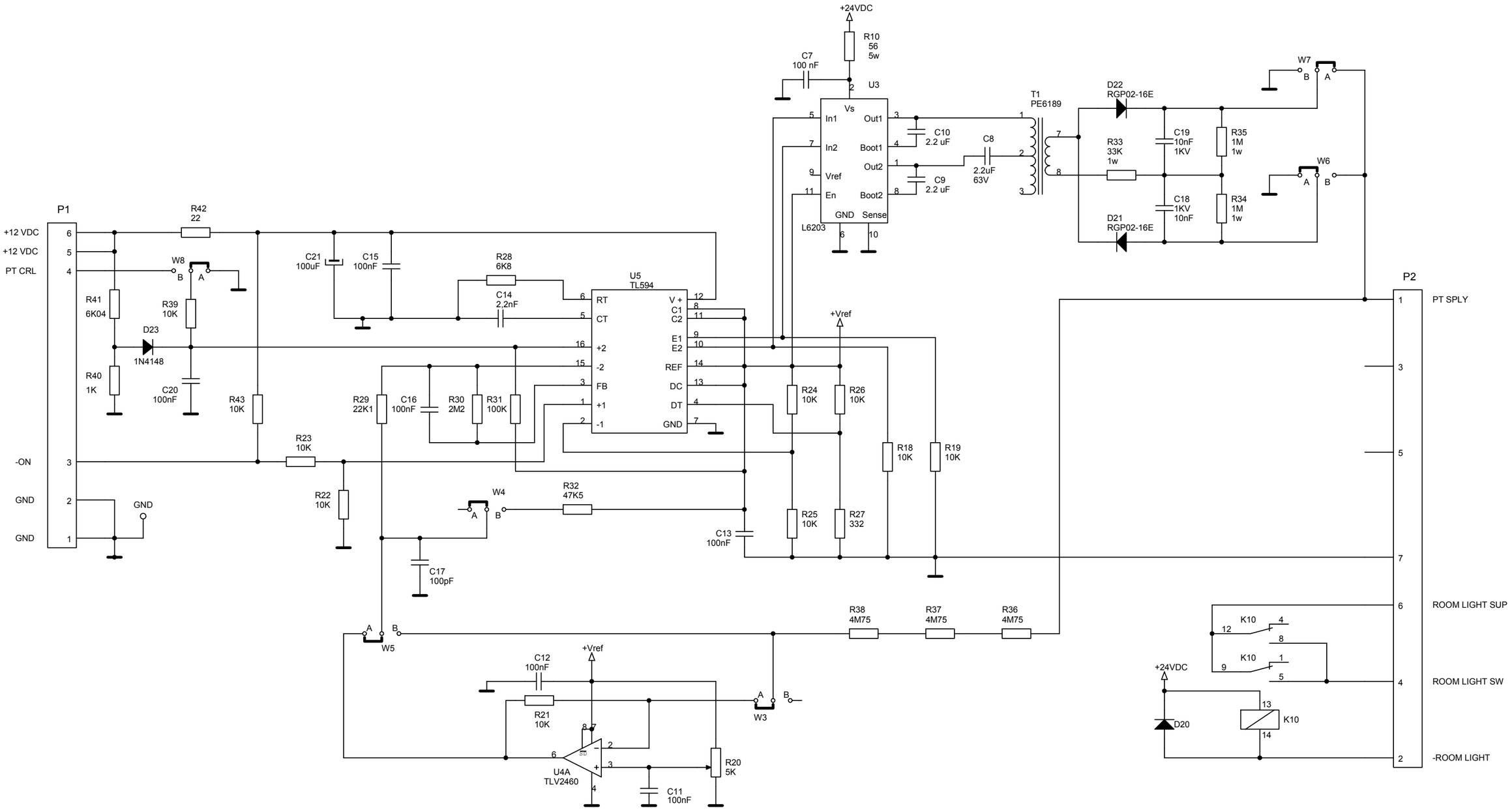


PHOTO TUBE SPLY OUTPUT (P2-1)

+500 VDC OR +300 VDC : JUMPERS W3 TO W8 IN POS "A", AND ADJUSTING WITH R20
VARIABLE NEGATIVE OUTPUT : JUMPERS W3 TO W10 IN POS "B"

SALIDA PHOTO TUBE SPLY (P2-1)

+500 VDC O +300 VDC : PUENTES W3 A W8 EN POS "A",Y AJUSTAR CON R20
SALIDA NEGATIVA VARIABLE : PUENTES W3 A W10 EN POS "B"

NOTE.- BE SURE THAT THE VALUE OF THE PHOTO TUBE SPLY OUTPUT IN P2-1 IS THE REQUIRED BEFORE CONECTING THE SYSTEM INTERFACE

NOTA.- ASEGURESE DE QUE EL VALOR DE LA SALIDA PHOTO TUBE SPLY EN P2-1 ES EL REQUERIDO ANTES DE HACER LA INTERCONEXION DEL SISTEMA

REV	DESCRIPTION	ISSUED BY	DATE
N	NC 14/118	M.González	16/04/14
M	NC 13/098	M.González	13/03/13
L	NC 09/360	F. Díaz	30/11/09
K	NC 08/102	F. Díaz	23/04/08

	NAME	DATE
DRAWING	F. Díaz	14/02/06
REVISED	A. Díaz	14/02/06

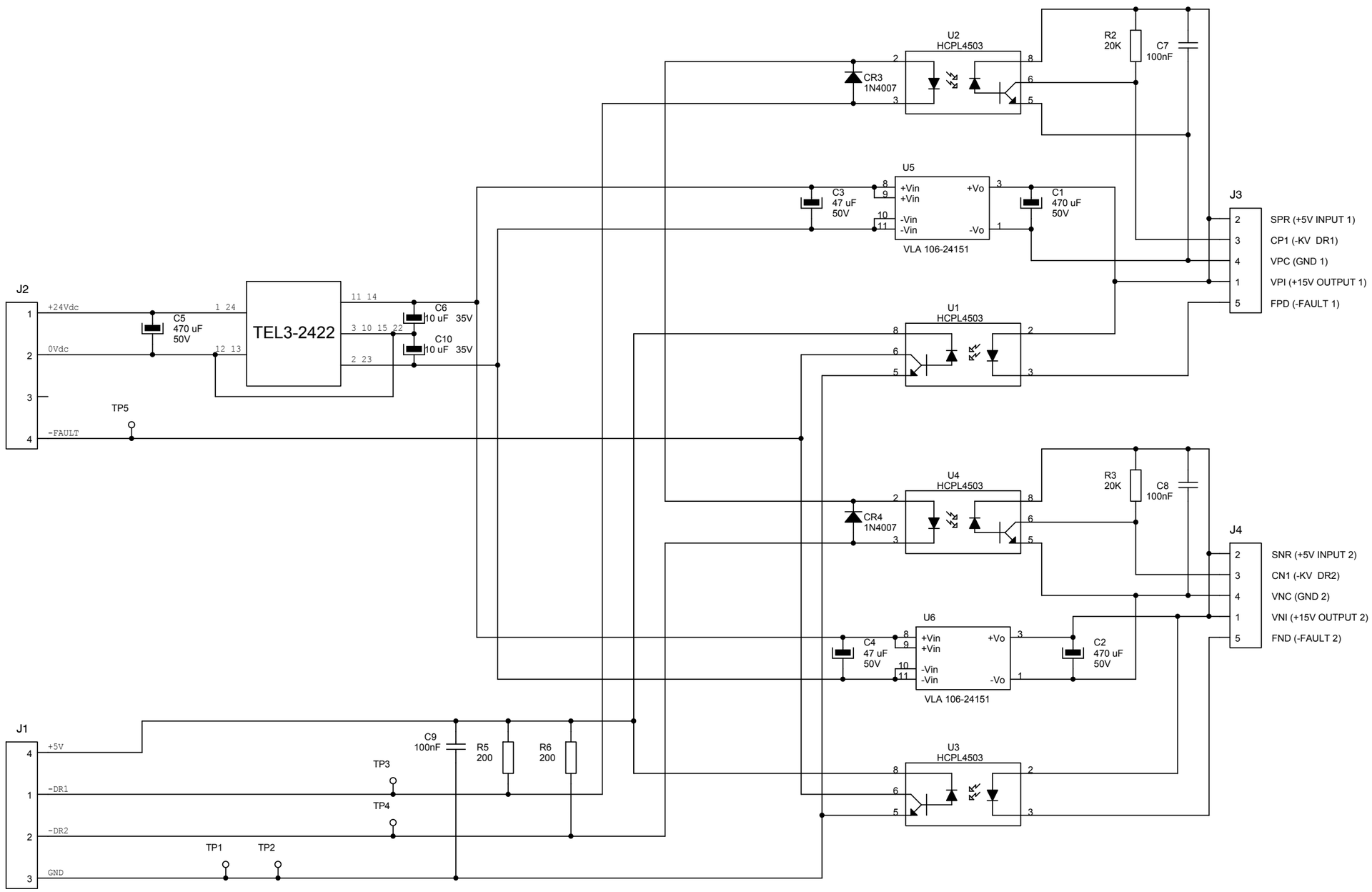
SHEET / OF: 2/2

SEDECAL

A3009-09/10/11/12/15

N	M	L	K	Jb1	I b2	I b1	REV

INTERFACE CONTROL



C.I. 90132-06

REV	DESCRIPTION	ISSUED BY	DATE
B	NC 13/001	F. Díaz	04/01/13

	NAME	DATE
DRAWING	F. Díaz	20/06/11
REVISED	A. Díaz	20/06/11

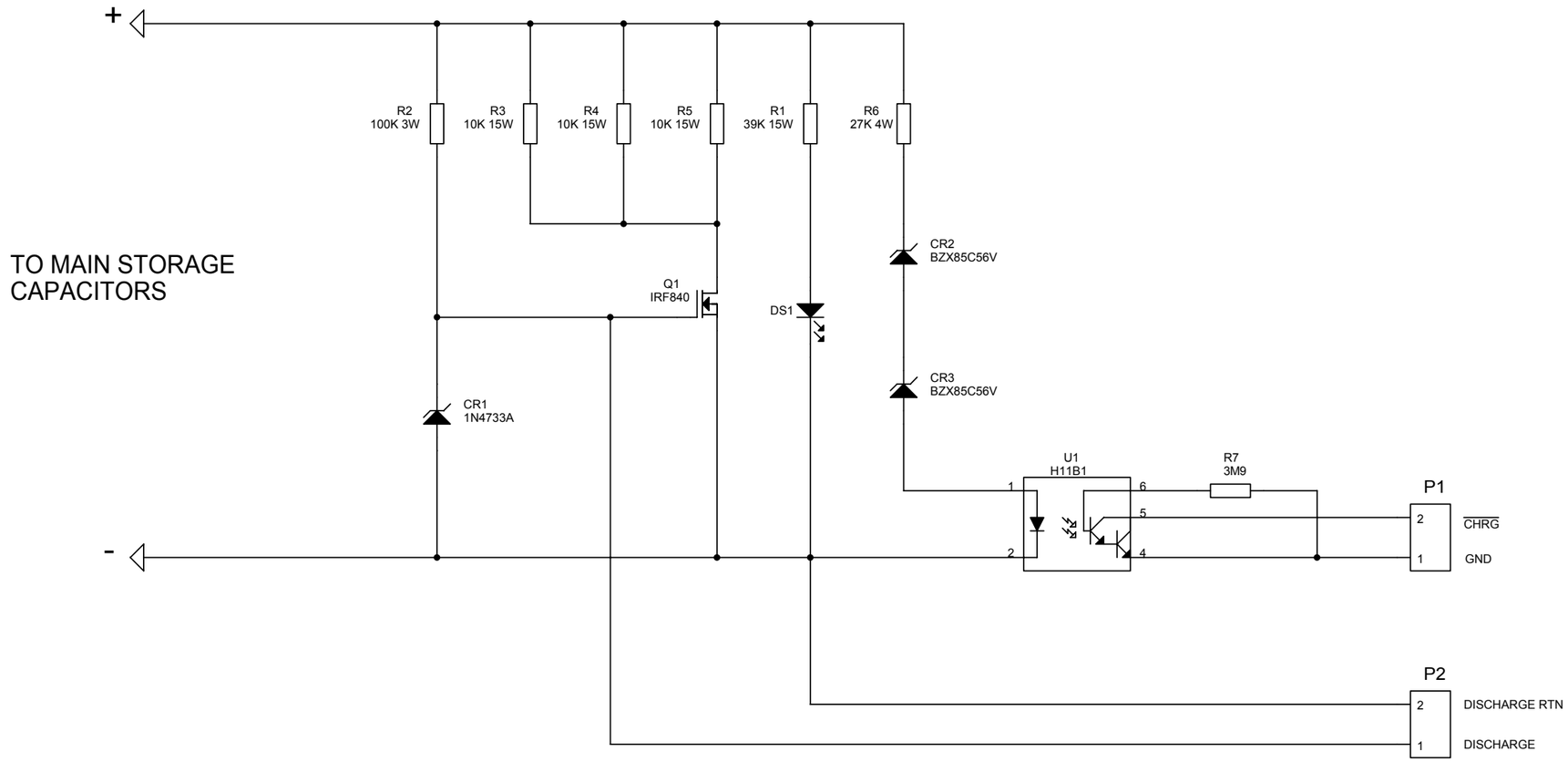
SHEET / OF: 1/1

A3063-06

REV: B A

SEDECAL

IPM DRIVER

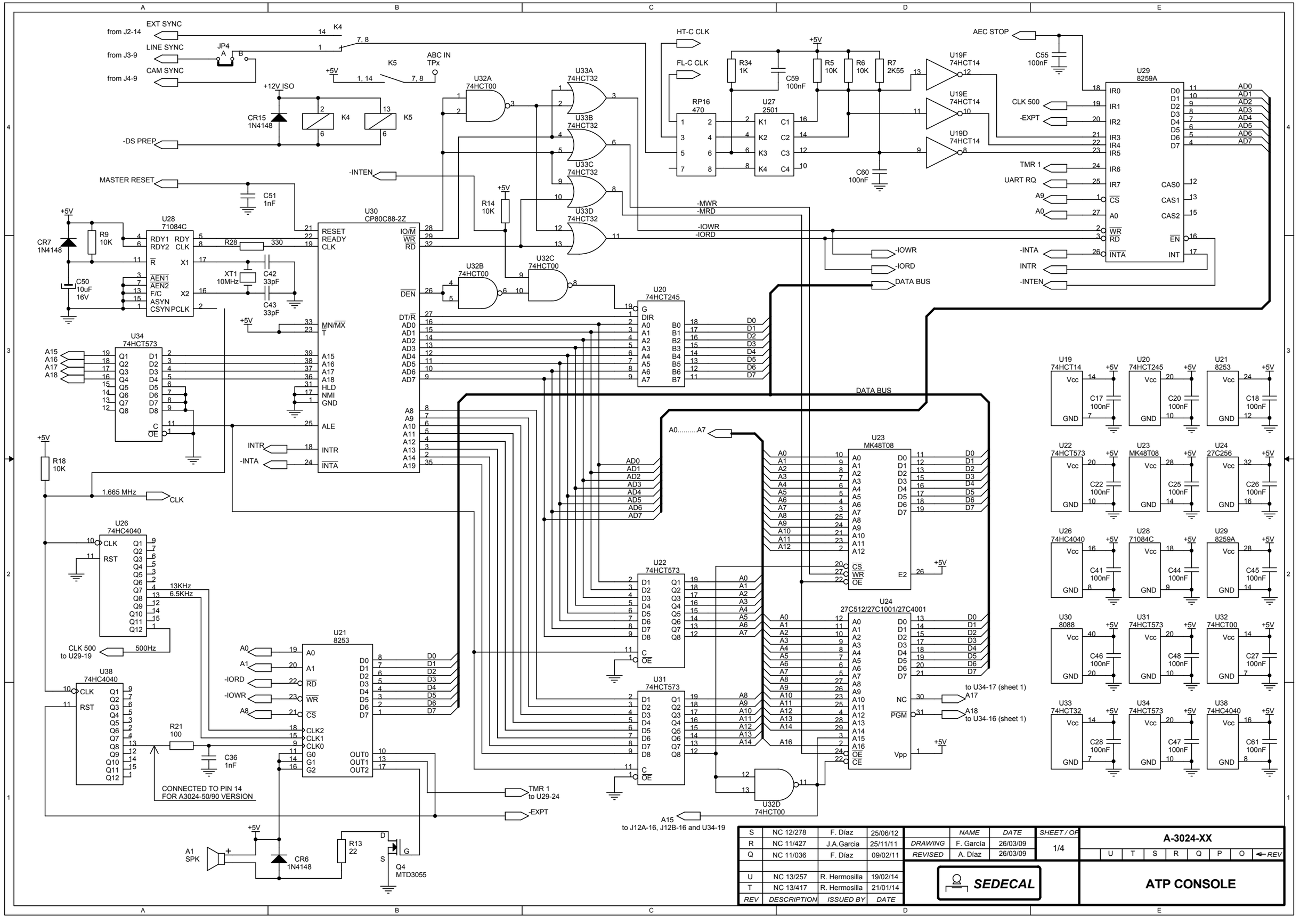


REV	DESCRIPTION	ISSUED BY	DATE
E	CN 98/114	F.GARCIA	10/10/98
D	CN 98/057	F.GARCIA	29/04/98
C	CN 96/033	F.GARCIA	06/03/96
B	CN 95/080	F.GARCIA	10/05/95
A	CN 95/74	F.GARCIA	25/04/95

CHARGE/DISCHARGE MONITOR

SEDECAL S.A.

ENG	F. GARCIA
CHK	A. DIAZ
REV	CN99/80 (22/07/99)
DWG	**3212-01** REV. F
	REV.
	REV.
DATE	11/01/95



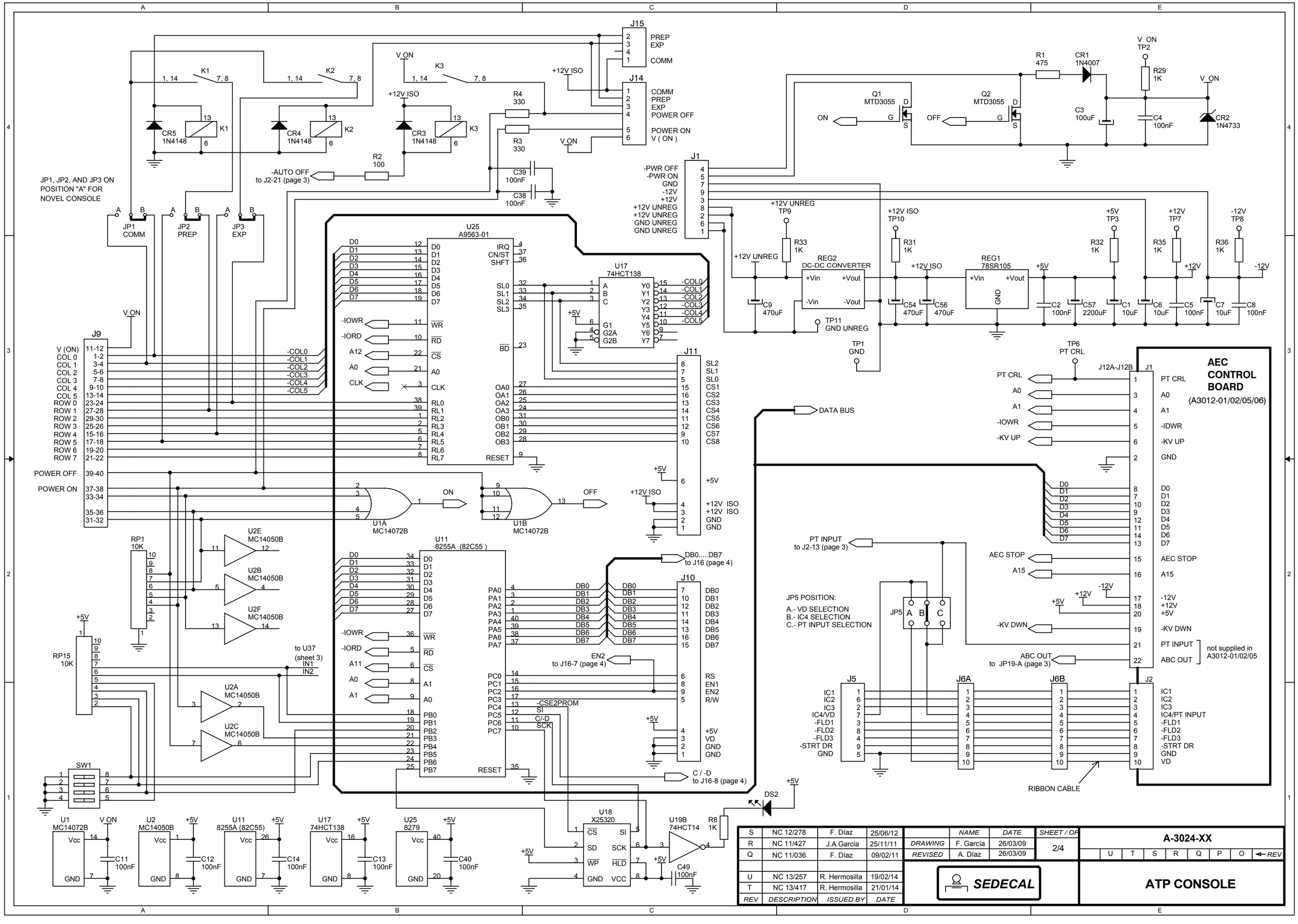
S	NC 12/278	F. Díaz	25/06/12		NAME	DATE	SHEET / OF
R	NC 11/427	J.A.Garcia	25/11/11	DRAWING	F. García	26/03/09	1/4
Q	NC 11/036	F. Díaz	09/02/11	REVISED	A. Díaz	26/03/09	
U	NC 13/257	R. Hermosilla	19/02/14				
T	NC 13/417	R. Hermosilla	21/01/14				
REV	DESCRIPTION	ISSUED BY	DATE				

SEDECAL

A-3024-XX

U T S R Q P O ← REV

ATP CONSOLE



REV	DESCRIPTION	ISSUED BY	DATE
S	NC 12/278	F. Díaz	25/06/12
R	NC 11/427	J.A.Garcia	25/11/11
Q	NC 11/036	F. Díaz	09/02/11
U	NC 13/257	R. Hermosilla	19/02/14
T	NC 13/417	R. Hermosilla	21/01/14

	NAME	DATE
DRAWING	F. García	26/03/09
REVISED	A. Díaz	26/03/09

SHEET / OF: 2/4

A-3024-XX

U T S R Q P O ← REV

SEDECAL

ATP CONSOLE

NOTE.- ALL DIODES 1N4148 UNLESS SPECIFIED

JUMPER	NORMAL	MOBILE
JP14	set	removed
JP15	removed	set
JP16	removed	set
JP17	removed	set
JP18	removed	set

note: only for -97 version.

S	NC 12/278	F. Díaz	25/06/12			NAME	DATE
R	NC 11/427	J.A.Garcia	25/11/11		DRAWING	F. García	26/03/09
Q	NC 11/036	F. Díaz	09/02/11		REVISED	A. Díaz	26/03/09
U	NC 13/257	R. Hermosilla	19/02/14				
T	NC 13/417	R. Hermosilla	21/01/14				
REV	DESCRIPTION	ISSUED BY	DATE				

SHEET / OF: 3/4

SEDECAL

A-3024-XX

U T S R Q P O ← REV

ATP CONSOLE

SERIAL COMMUNICATION REQUIRES THE
COMPONENTS SHOWN IN THIS BOX

version -26: RS422 communication, JP7-JP8-JP9-JP10-JP11-JP21-JP22 "B" position

version -27: RS485 communication, JP7-JP8-JP21-JP22 "A" position; JP9, JP10, JP11 "B" position.

CONSOLE COMM
J8

note: only for -97 version.

SET JP12 FOR
FLUOROSCAN

KEYBOARD

INTEGRATED
FLUORO CPU
BOARD

ATP
CONSOLE
BOARD

DISPLAY
BOARD

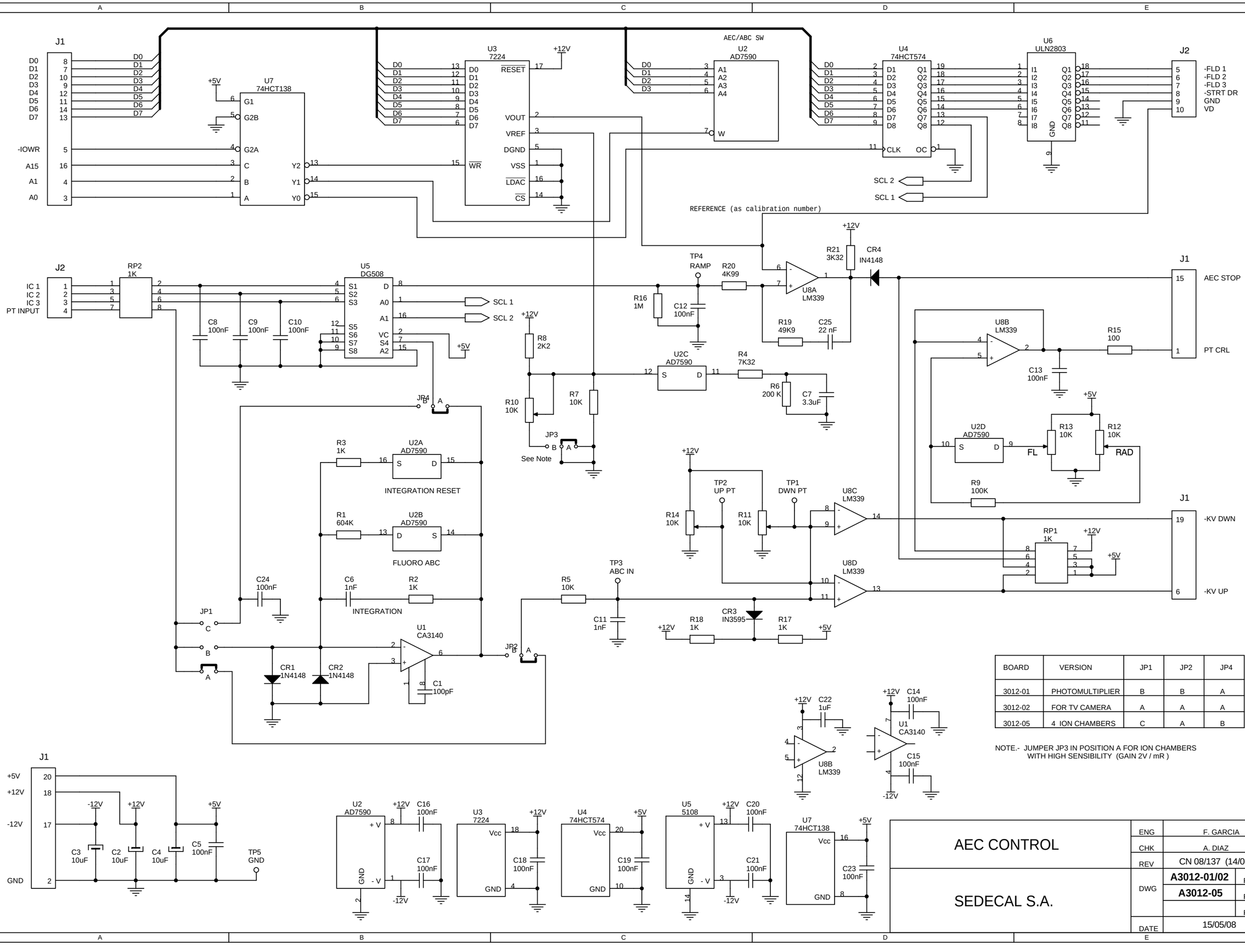
S	NC 12/278	F. Díaz	25/06/12			NAME	DATE
R	NC 11/427	J.A.Garcia	25/11/11	DRAWING	F. García	26/03/09	SHEET / OF 4/4
Q	NC 11/036	F. Díaz	09/02/11	REVISED	A. Díaz	26/03/09	
U	NC 13/257	R. Hermosilla	19/02/14				
T	NC 13/417	R. Hermosilla	21/01/14				
REV	DESCRIPTION	ISSUED BY	DATE				

SEDECAL

A-3024-XX

U T S R Q P O ← REV

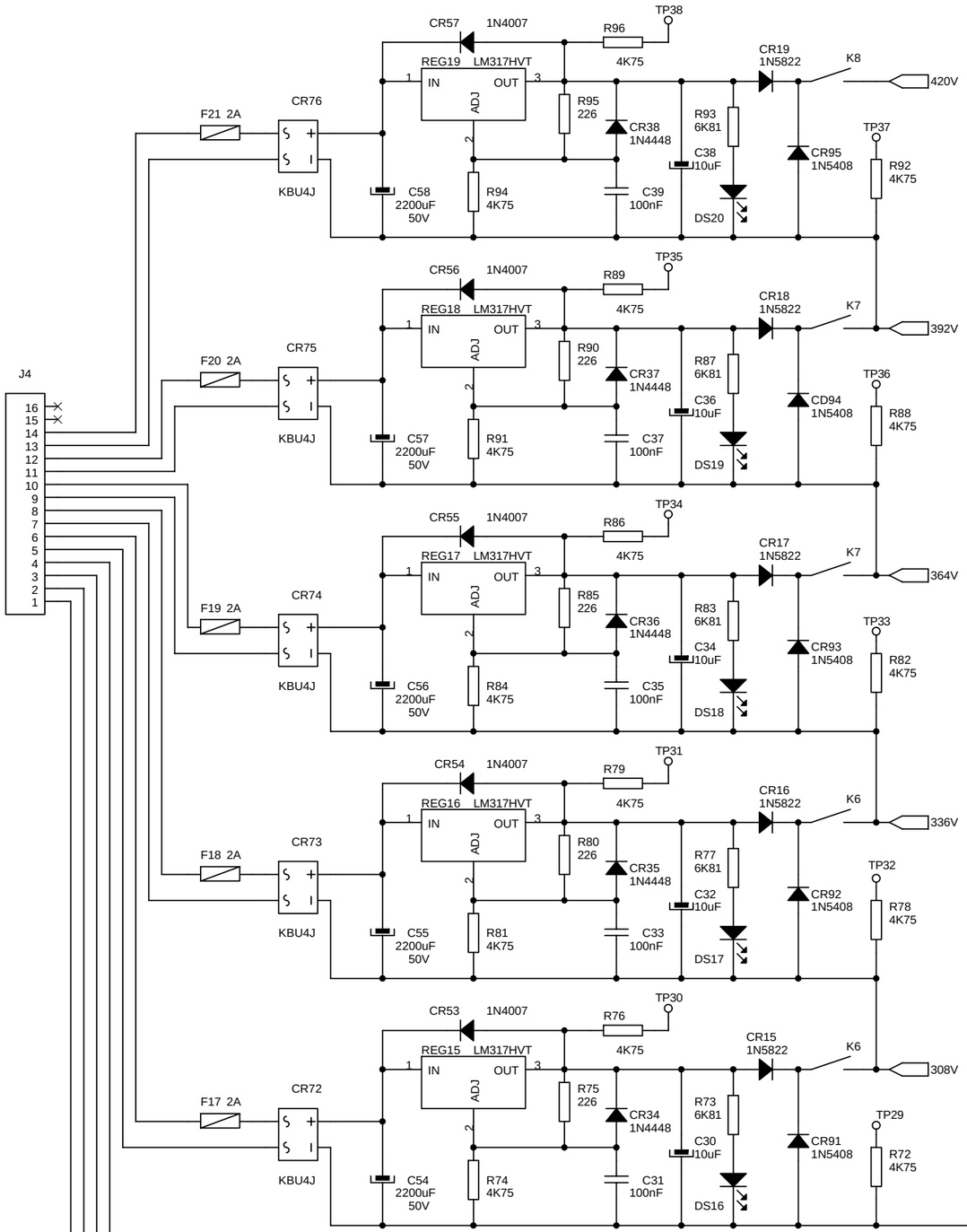
ATP CONSOLE

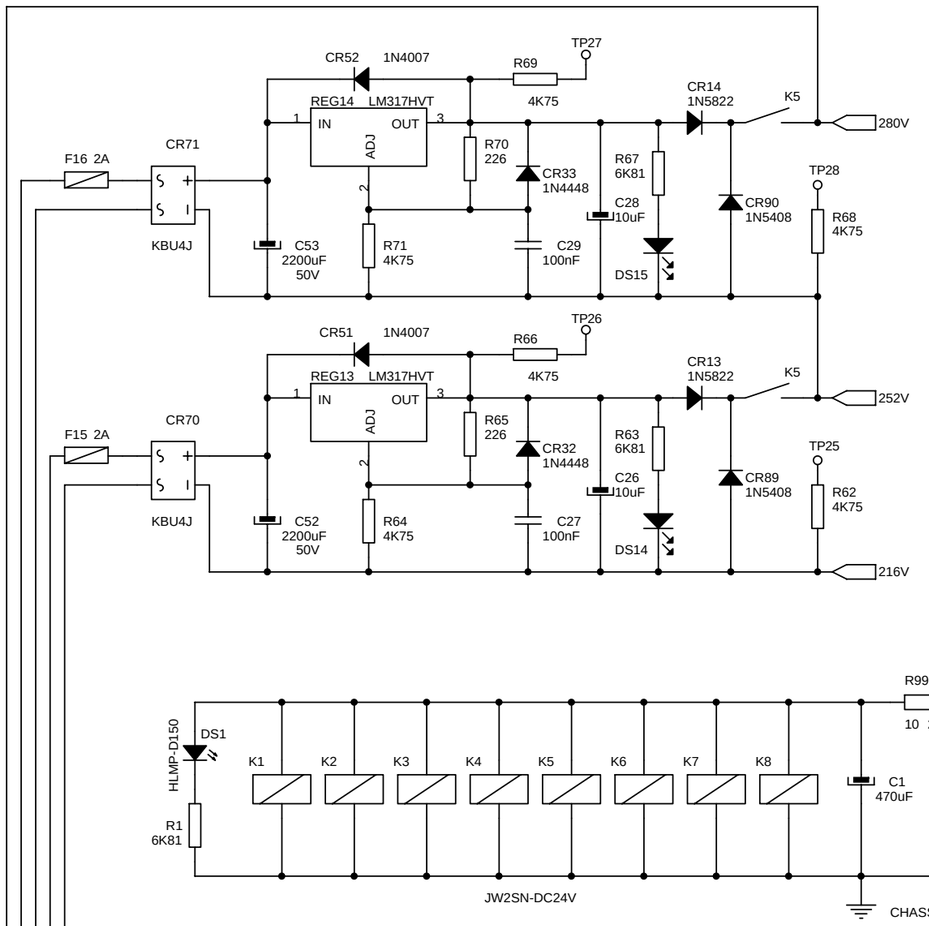


BOARD	VERSION	JP1	JP2	JP4
3012-01	PHOTOMULTIPLIER	B	B	A
3012-02	FOR TV CAMERA	A	A	A
3012-05	4 ION CHAMBERS	C	A	B

NOTE.- JUMPER JP3 IN POSITION A FOR ION CHAMBERS WITH HIGH SENSIBILITY (GAIN 2V / mR)

AEC CONTROL	ENG	F. GARCIA
	CHK	A. DIAZ
	REV	CN 08/137 (14/05/08)
SEDECAL S.A.	DWG	A3012-01/02 REV. L
		A3012-05 REV. E
		REV.
	DATE	15/05/08





REV	DESCRIPTION	ISSUED BY	DATE

	NAME	DATE
DRAWING	F. Díaz	22/02/05
REVISED	A. Díaz	22/02/05

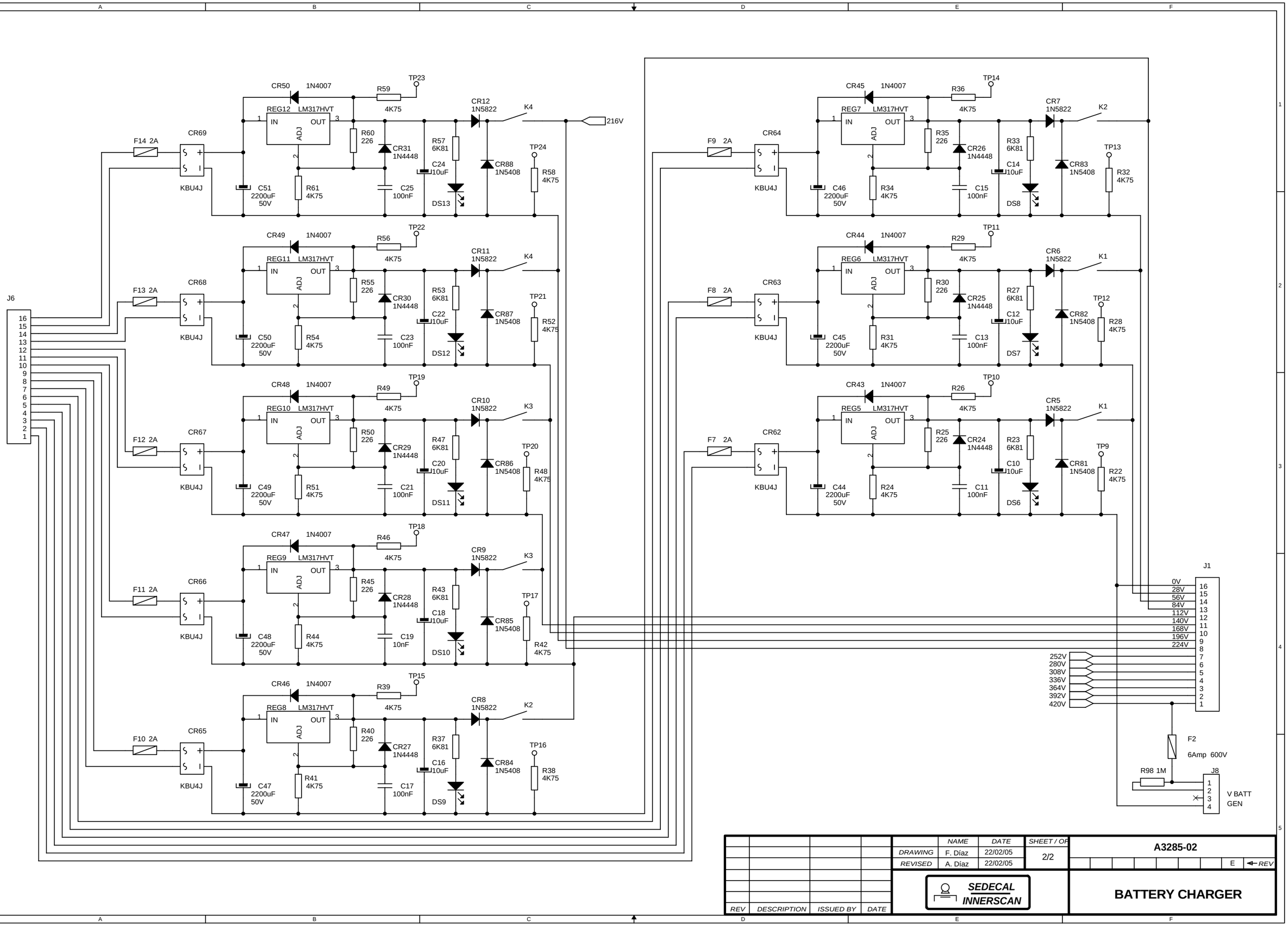
SHEET / OF: 1/2

SEDECAL INNERSCAN

A3285-02

REV: E

BATTERY CHARGER



REV	DESCRIPTION	ISSUED BY	DATE

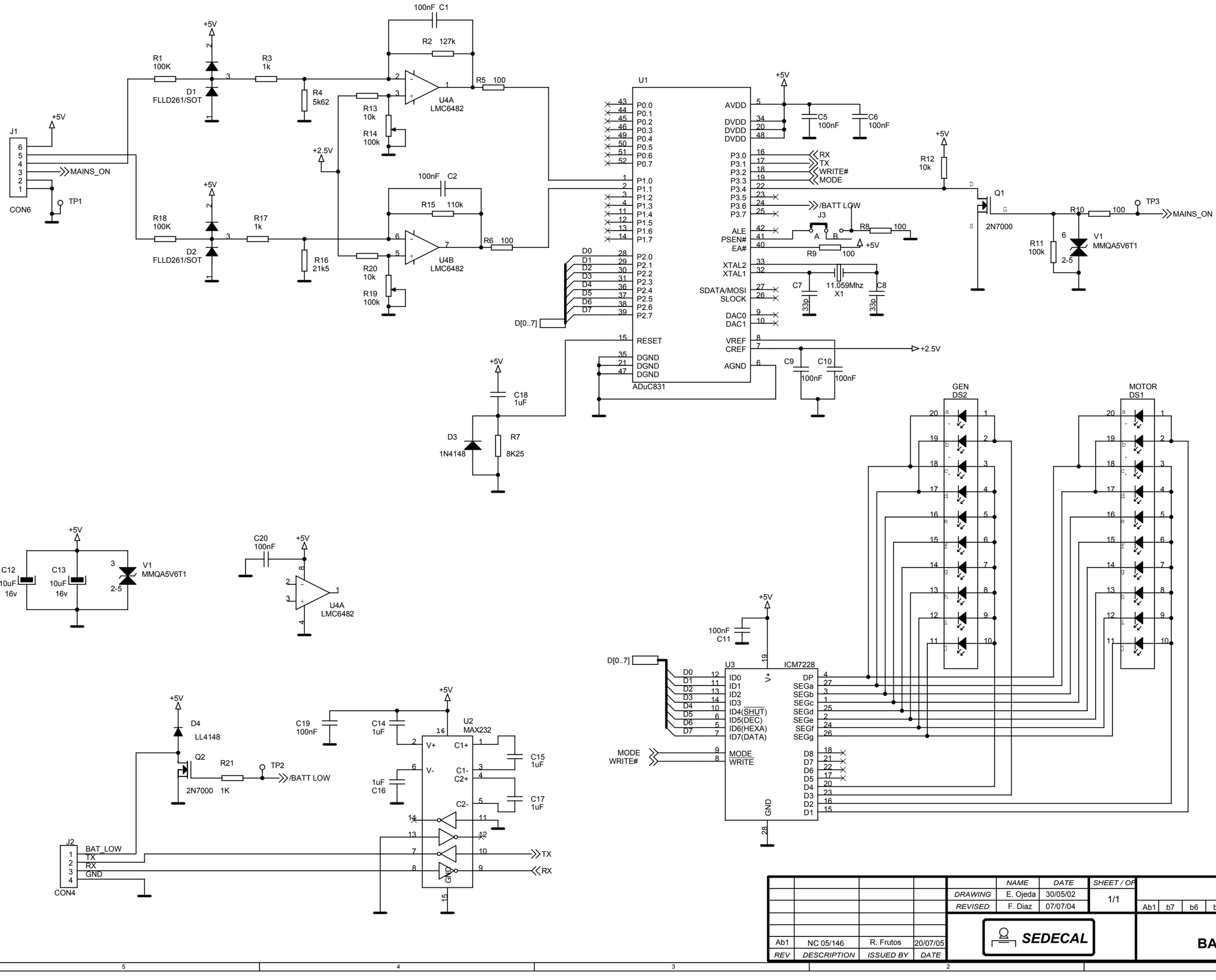
	NAME	DATE	SHEET / OF
DRAWING	F. Díaz	22/02/05	2/2
REVISED	A. Díaz	22/02/05	

SEDECAL INNERSCAN

A3285-02

E ← REV

BATTERY CHARGER



90050-11

REV	DESCRIPTION	ISSUED BY	DATE
Ab1	NC 05/146	R. Frutos	20/07/05

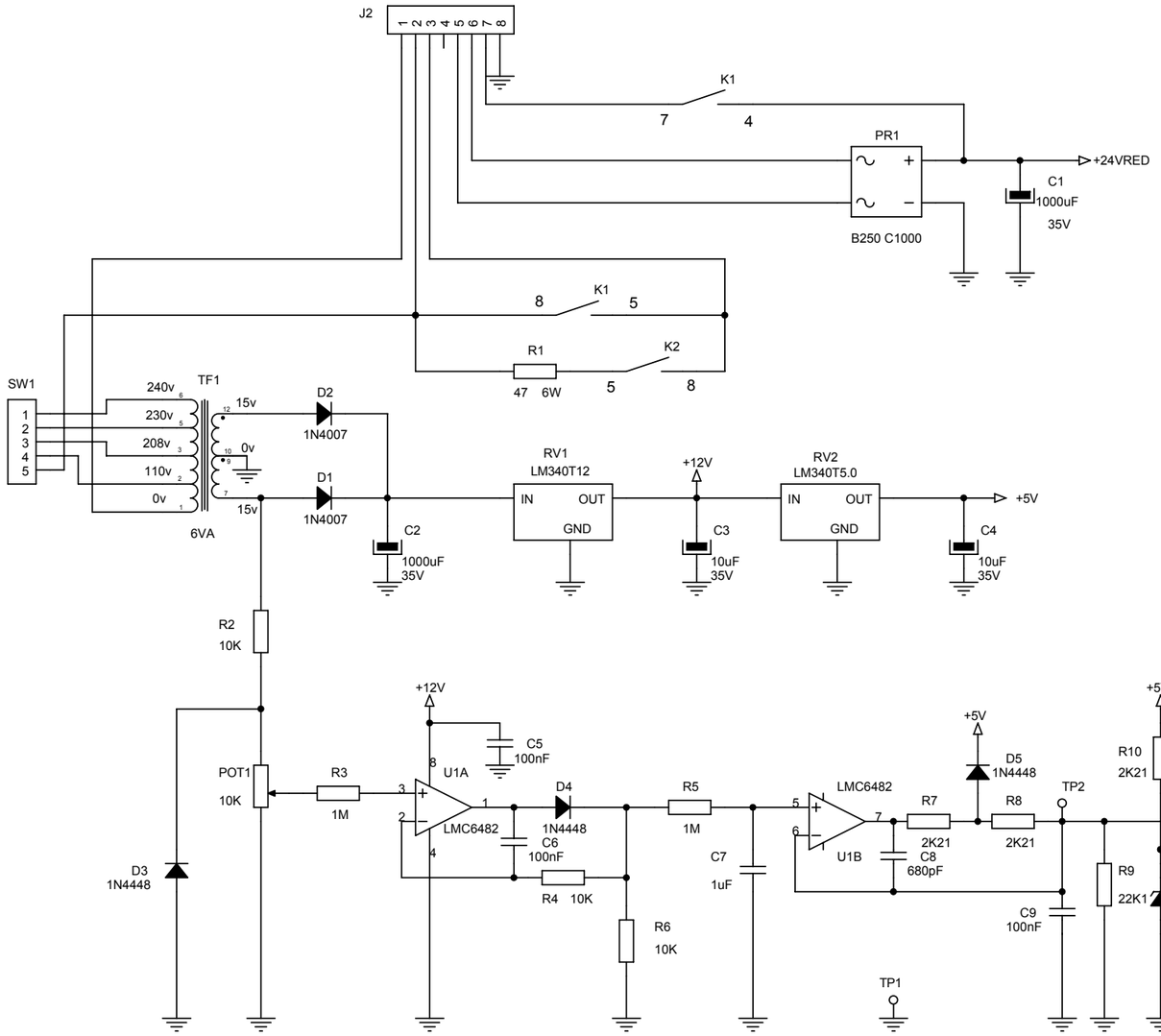
	NAME	DATE	SHEET / OF
DRAWING	E. Ojeda	30/05/02	1/1
REVISED	F. Diaz	07/07/04	

SEDECAL

A3580-01

Ab1	b7	b6	b5	b4	b3	b2	b1	REV

BATERY MONITOR



REV	DESCRIPTION	ISSUED BY	DATE
C	NC 01/168	F. Díaz	21/09/01
B	NC 00/086	F. Díaz	28/04/00
A	NC 00/043	F. Díaz	15/03/00

	NAME	DATE
DRAWING	F. Díaz	25/10/99
REVISED	A. Díaz	27/10/99

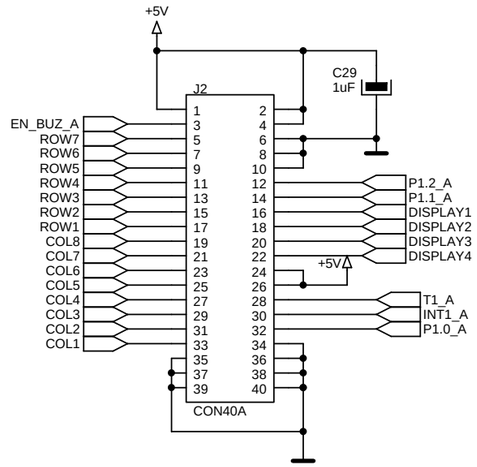
SHEET / OF: 1/1

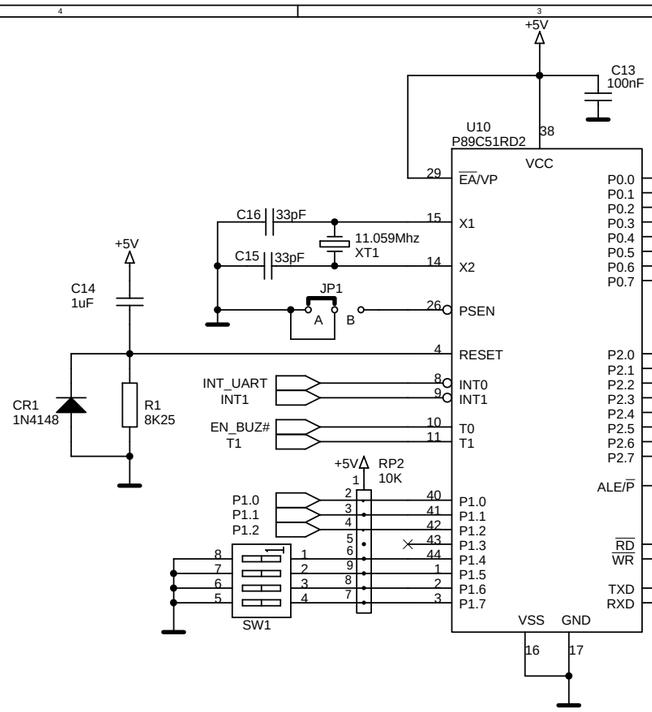
SEDECAL INNERSCAN

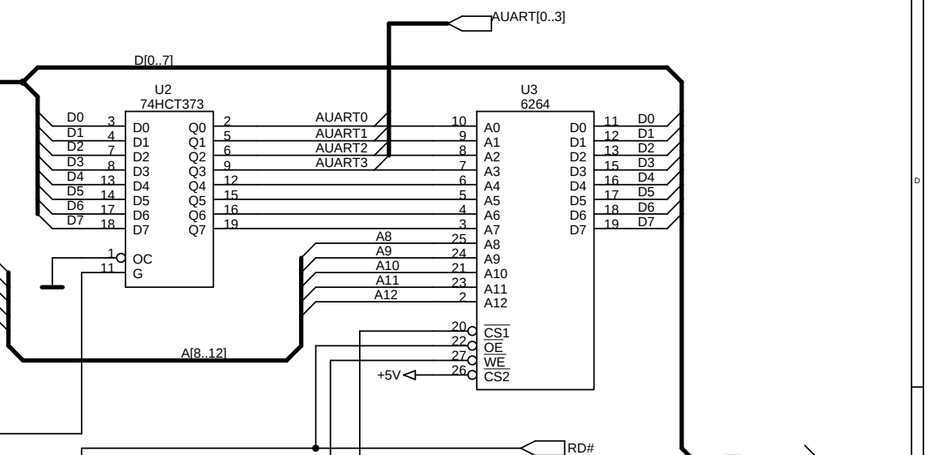
A3139-01

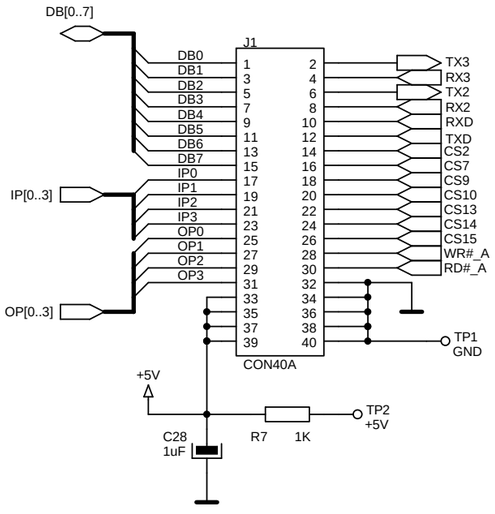
REV: C B A B1

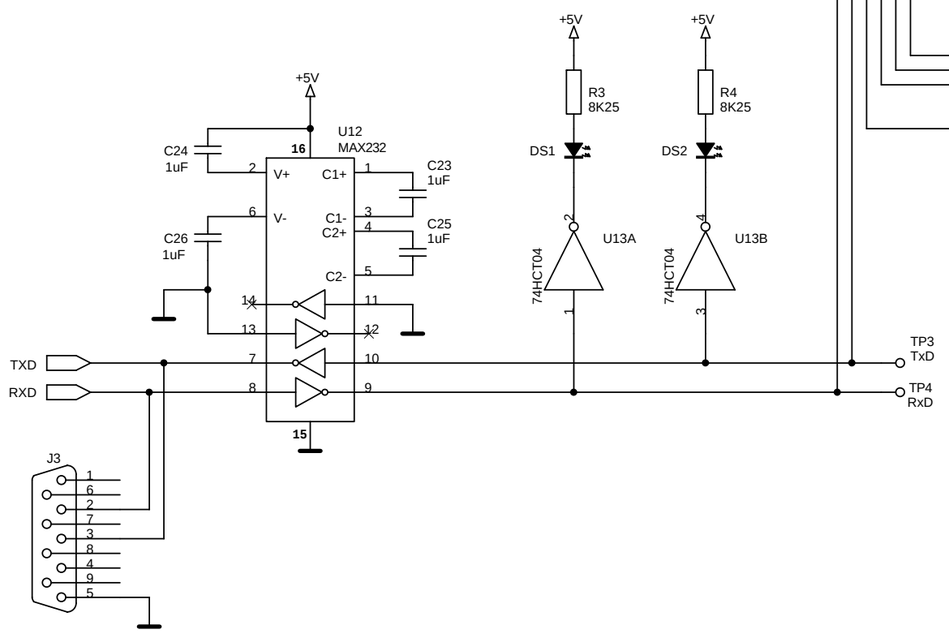
LINE MONITOR

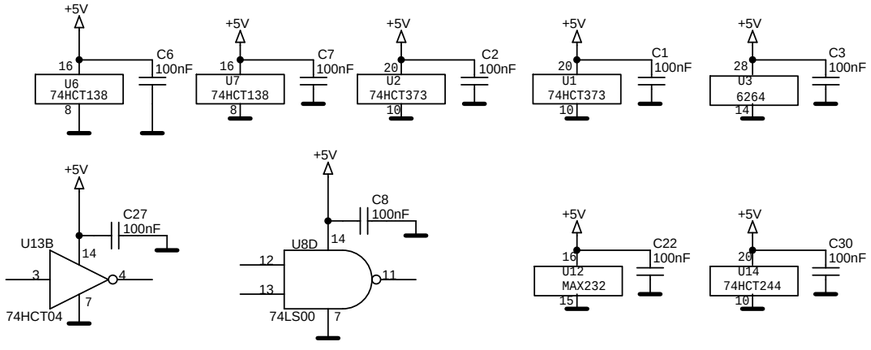


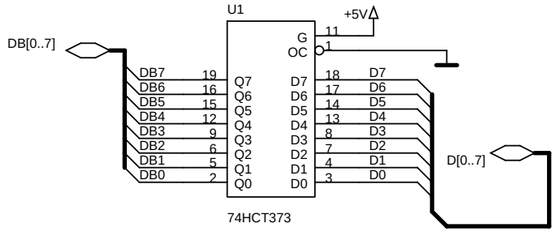


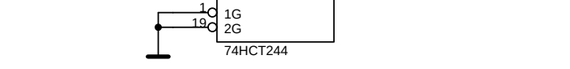






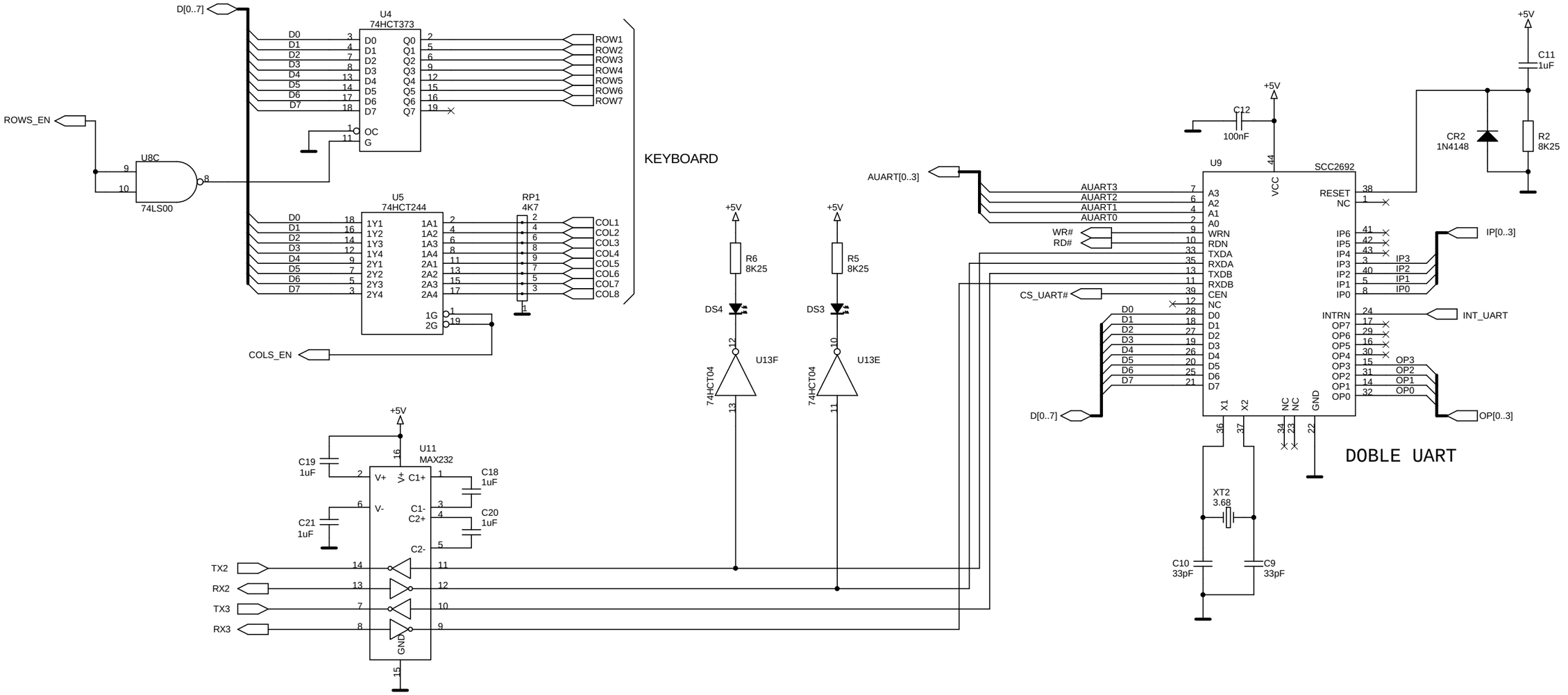






90009-04

					NAME	DATE	SHEET / OF	A3553-02
				DRAWING	J.A.Garcia	14/02/09	1/2	
				REVISED	F.DIAZ	30/04/03		C B A REV
C	NC:09/042	J.A.Garcia	23/02/09					
B	NC:03/148	E.OJEDA	29/07/03	SEDECAL				SERIAL CONSOLE CONTROL
A	NC:03/074	E.OJEDA	30/04/03					
REV	DESCRIPTION	ISSUED BY	DATE					



90009-04

					NAME	DATE	SHEET / OF
				DRAWING	J.A.Garcia	14/02/09	2/2
				REVISED	F.DIAZ	30/04/03	

REV	DESCRIPTION	ISSUED BY	DATE
C	NC:09/042	J.A.Garcia	23/02/09
B	NC:03/148	E.OJEDA	29/07/03
A	NC:03/074	E.OJEDA	30/04/03

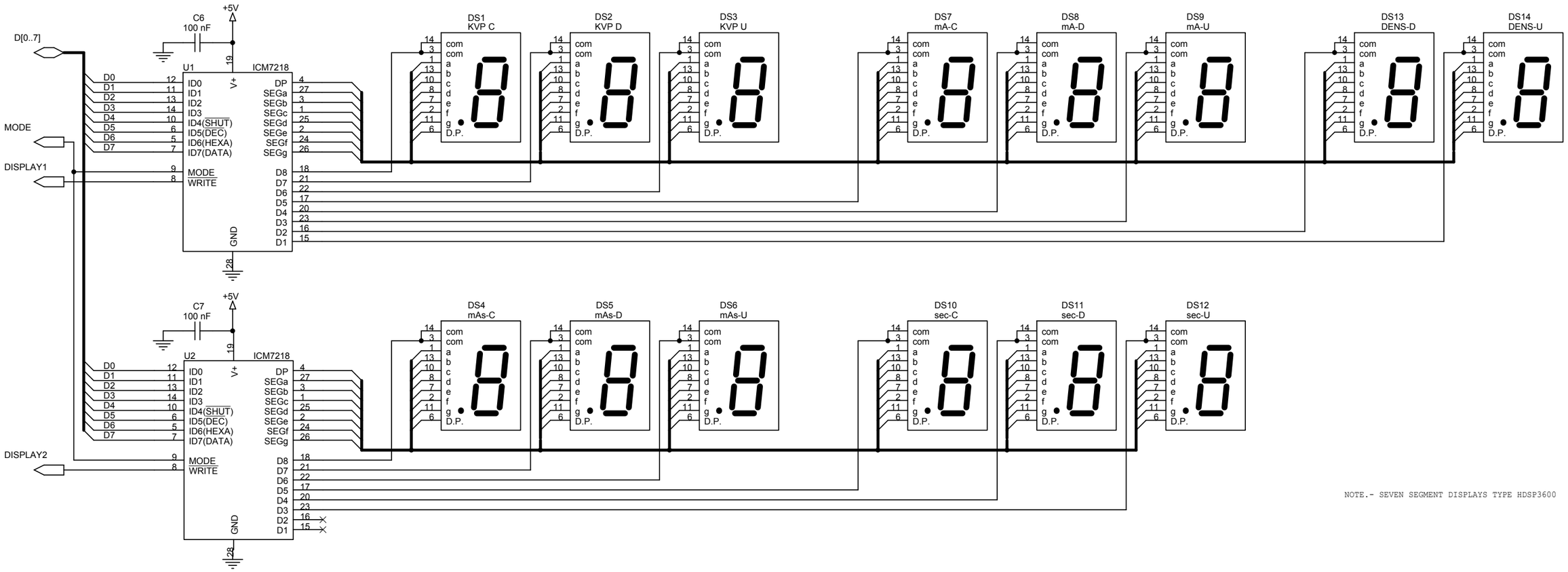
SEDECAL

A3553-02

C B A ← REV

SERIAL CONSOLE CONTROL

b.0



NOTE.- SEVEN SEGMENT DISPLAYS TYPE HDSP3600

REV	DESCRIPTION	ISSUED BY	DATE
A	NC: 12/210	J.A.Garcia	25/05/12

	NAME	DATE
DRAWING	E.OJEDA	11/11/03
REVISED	A.DIAZ	11/11/03

SHEET / OF: 1/3

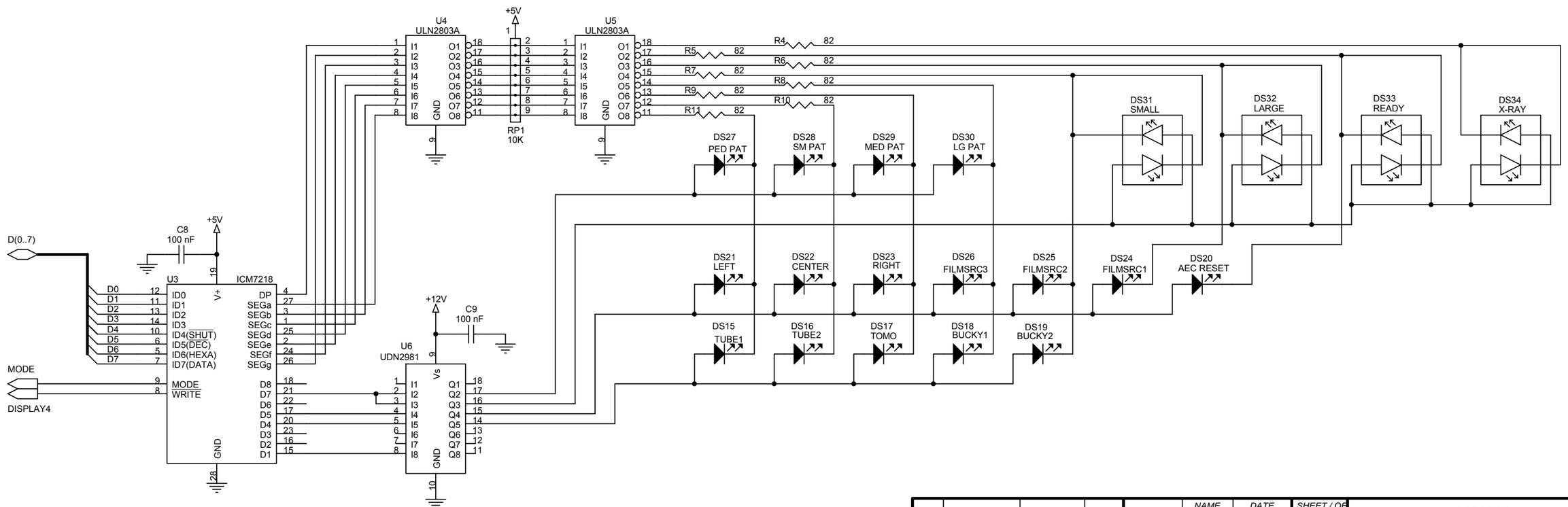
SEDECAL

A3585-21

REV: A

CONSOLE DISPLAY

Conector OVERLAY



NOTE 1.- ALL LED's HLMP-0400 UNLESS SPECIFIED

NOTE 2.- ALL DIODES 1N4148 UNLESS SPECIFIED

REV	DESCRIPTION	ISSUED BY	DATE
A	NC: 12/210	J.A.Garcia	25/05/12

	NAME	DATE
DRAWING	E.OJEDA	11/11/03
REVISED	A.DIAZ	11/11/03

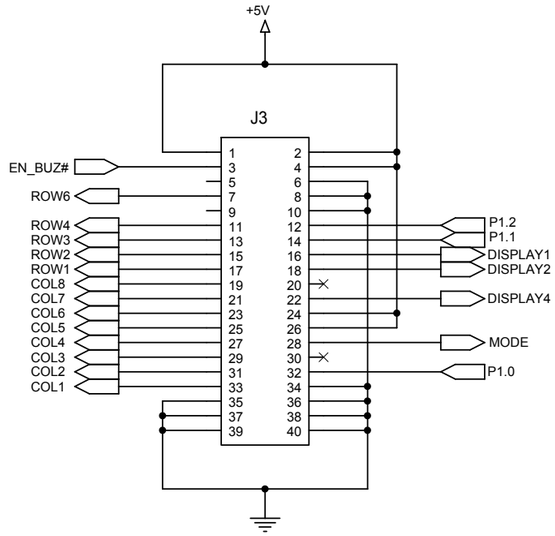
SHEET / OF 2/3

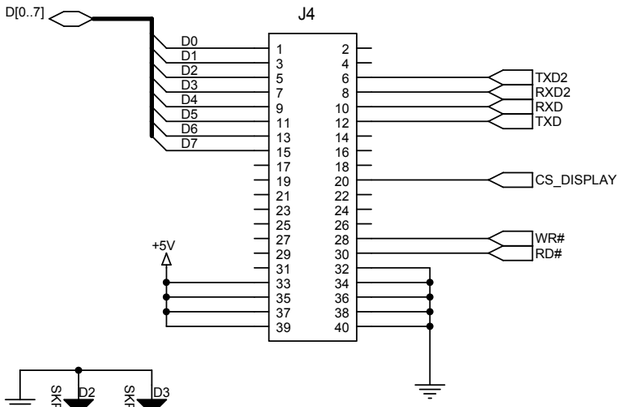
A3585-21

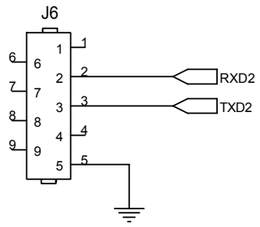
REV A

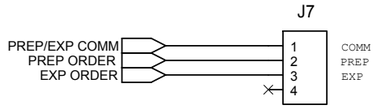
SEDECAL

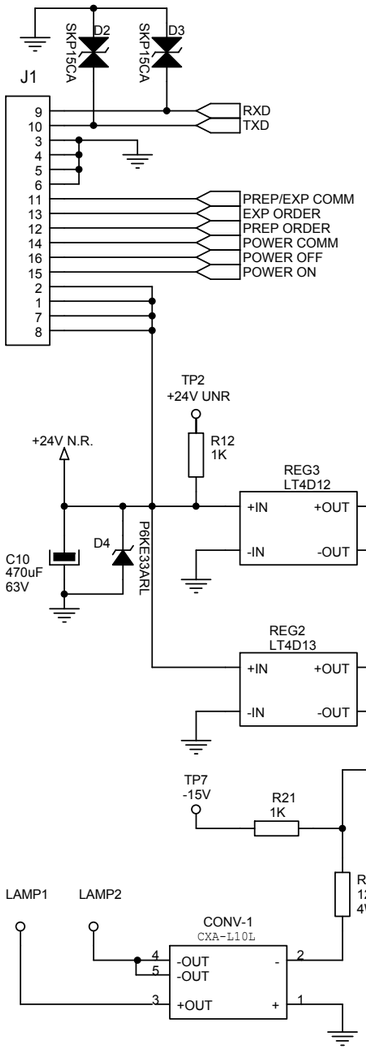
CONSOLE DISPLAY

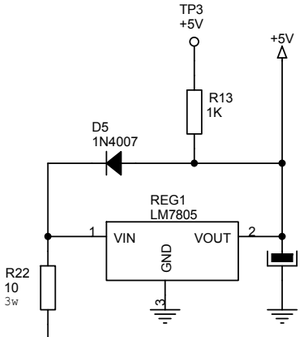


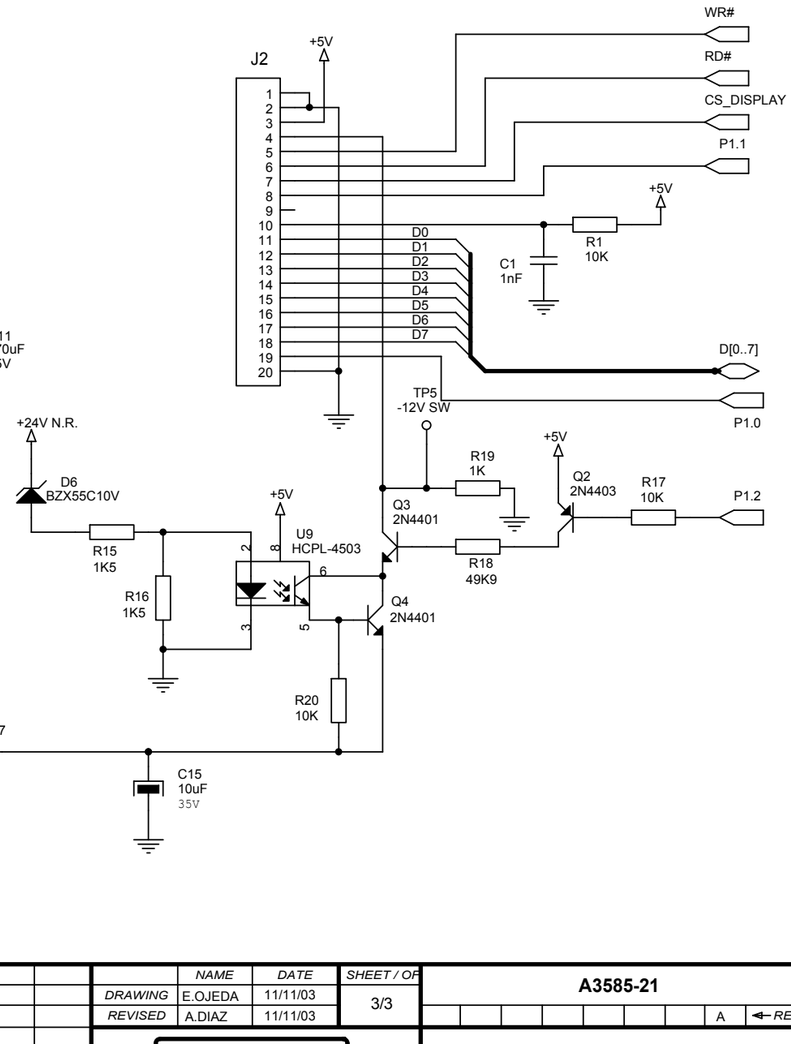


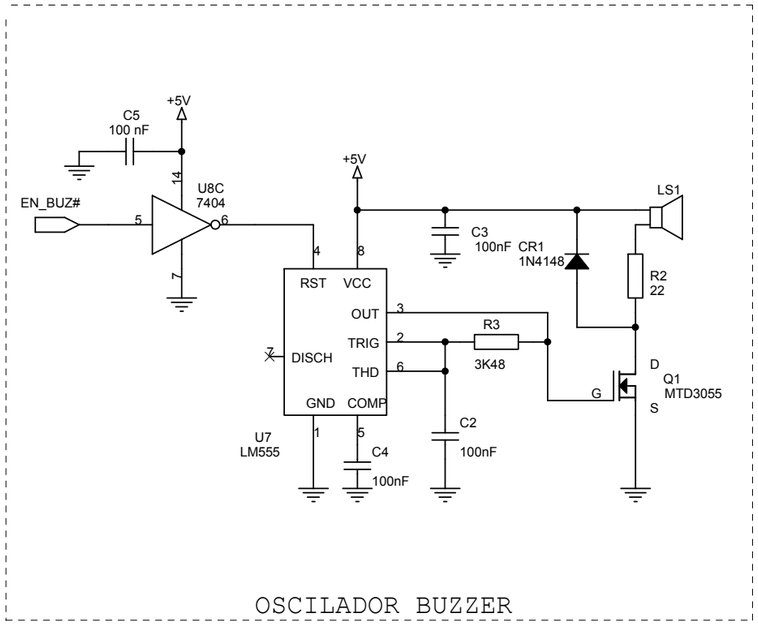












OSCILADOR BUZZER

					NAME	DATE	SHEET / OF
				DRAWING	E.OJEDA	11/11/03	3/3
				REVISED	A.DIAZ	11/11/03	
A	NC: 12/210	J.A.Garcia	25/05/12				
REV	DESCRIPTION	ISSUED BY	DATE	SEDECAL			

A3585-21

A ← REV

CONSOLE DISPLAY