RE: After sales service
Betrifft: Service Reparaturanleitung
Concerne : service technique

Service Manual

Manuel de service

STYLE 400 BX STYLE 400 FX

100 BX 100 FX

Schematic diagrams and part list

Schémas et liste des pièces

05.2013

Table of contents

Safety notice

IMPORTANT !

The interior of the generator or compact contain components carrying dangerous levels of electric charge, even though the unit has been disconnected from the mains.

ALWAYS TAKE THE FOLLOWING PRECAUTIONS:

1. **Always remove the battery box, and discharge the unit before (for generator) and after (for compact) removing the outer cover or housing. This is best achieved with a suitable discharge resistor (code 11931) and adapter cable (code 11095) fitted to a lamp head plug which may be inserted into a lamp head outlet for generator only. For compact connect the discharge resistor in the flash tube terminals.**

2. **Take care when opening a generator. Always start by connecting a voltmeter across the storage capacitors, as capacitor drainage may not have occurred.**

ACHTUNG GEFAHR !

Auch wenn die Batterie Box nicht im Generator steckt, können im Innern des Gerätes noch gefährliche elektrische Spannungen vorhanden sein.

ACHTUNG GEFAEHRLICHE HOCHSPANNUNG:

1. **Bevor Sie ein Blitzgerät öffnen, entfernen Sie die Batterie Box und entladen Sie zuerst die Kondensatoren mittels Entladewiderstand (Best.Nr. 11931) und Adapter Kabel (Best. Nr. 11095).**

2. **Vorsicht beim Öffnen eines Blitzgerätes. Verbinden Sie sofort ein Voltmeter mit den Kondensatoren, denn diese könnten nicht entladen sein.**

ATTENTION DANGER!

Des tensions électriques dangereuses restent présentes dans les condensateurs, même lorsque l'appareil est déconnecté de son mode d'alimentation (secteur 120/230V ou batterie dans le cas des générateurs autonomes « Free Style et Ranger »).

PRUDENCE! LORS DE L'OUVERTURE D'UN GÉNÉRATEUR OU COMPACT.

Pour un flash fonctionnant sur le secteur, la première action sera de retirer la fiche d'alimentation.
Avant d'ouvrir un générateur déchargez-le avec un dispositif approprié, (n° de code 11931, version avec une lampe 230V) ou (n° de code 11930 version avec une lampe 120V).

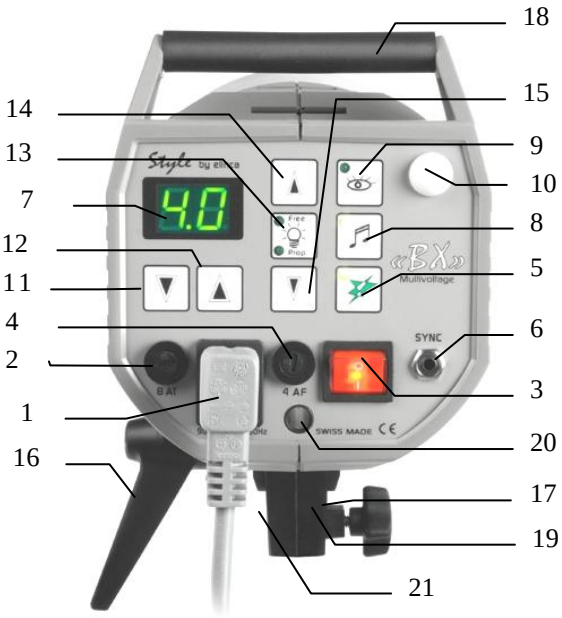
Pour un compact « Style »**, il faut retirer une partie du boîtier plastique (1/2 coque droite) et ensuite déchargez-le en raccordant le dispositif 11931 (ou une résistance de puissance appropriée) sur les tiges ou les éléments de fixation du tube flash.**

Pour un flash fonctionnant sur batterie « Free Style et Ranger »
Avant de l'ouvrir, éjecter la batterie de l'appareil et décharger l'unité en utilisant l'adaptateur 11095 et le dispositif de décharge 11931 ou (11930 version 120V).

Avant toute intervention, vérifier avec un voltmètre la tension aux bornes des condensateurs. La décharge peut ne pas avoir eu lieu, la rupture d'un élément de sécurité ou d'un conducteur peut en être la cause.

Operating instructions

1. Check that the unit voltage is correct
2. Check that the mains switch "**3**" is on "**O**" position.
3. Insert mains cable to the MAINS INLET "**1**" and connect to a FULLY EARTHED OUTLET
4. Connect the sync cord on the socket "**6**".
5. Using the main ON/OFF SWITCH "**3**" switch the unit "**I**" position.
6. Select the power with the push buttons "**11**" and "**12**"



Mise en service

1. S'assurer que l'alimentation secteur soit munie d'une mise à la terre et que la tension corresponde à celle indiquée sur l'étiquette signalétique qui est située sous l'appareil.
2. Vérifier que l'interrupteur "3" soit sur "O".
3. Brancher le cordon secteur livré sur la prise "1" et ensuite au réseau.
4. Raccorder un câble de synchronisation sur une des deux prises de synchronisation " 6".
5. Enclencher l'appareil en basculant l'interrupteur "3" le mettre sur la position "I"
6. Choisir la puissance du flash en agissant sur les touches "11" et "12"

Inbetriebnahme

1. Überprüfen Sie, dass die Netzanschluss- Steckdose geerdet ist und die Netzspannung mit der des Blitzgerätes "1" übereinstimmt.
2. Der Schalter "3" muss auf AUS stehen.
3. Netzkabel am Gerät einstecken "1" und dann erst
4. SYNCHRO- Kabel anschließen an eine der zwei dafür vorgesehenen Buchsen "5"
5. Das Gerät mit dem Kippschalter "3" einschalten (EIN).
6. Die Blitzleistung kann mit den Tastern "11" und "12" eingestellt werden.

According to the safety regulation: We draw your attention to the fact that this equipment should be used only in a dry environment; it must be protected from dripping water and from extremely dusty conditions. The unit must ALWAYS be plugged into an EARTHED electrical socket.

INDEX

1. Mains inlet socket
2. Mains fuse (slow blow)
3. Mains Illuminated on/off switch
4. Modelling fuse (fast blow)
5. Open-flash
6. Synchro-sockets, Amphenol + jack 3,5mm
7. Digital power display and charge/discharge indicator
8. Acoustic recharging signal (Beep)
9. Slave cell switch on/off
10. Photocell receptor
11. – Power adjustment in 1/10 f-stops, with ADF
12. + Power adjustment in 1/10 f-stops
13. Modelling lamp switch (on/off free or prop)
14. +Modelling power control
15. – Modelling power control
16. Level tilthead
17. Knurled clamp screw
18. Handle
19. Stand 5/8-inch socket
20. Umbrella tube (only for EL umbrellas, diameter 7mm)
21. Supplementary locking for others umbrellas

Printed boards

Overview

Style 100 BX

Board	Code No.	Name	Description	Used on (compatible for)
PB1	14437BX1	Flash	Flash and CAP board	
PB2	14444BX1	Power	Power board 100 BX Bi-Voltage	
PB3	14447BX-FX100	Key board	Key board for all FX/BX **With BR100 = closed !**	Style FX/BX series 100FX, 100BX

Style 400 BX

Board	Code No.	Name	Description	Used on (compatible for)
PB1	14439BX4	Flash	Flash and CAP board	
PB2	14446BX4	Power	Power board 400 BX Bi-Voltage	
PB3	14447BX-FX400	Key board	Key board for all FX/BX **With BR100 = open !**	Style FX/BX series 400FX, 400BX

Style 100 FX / 230V

Board	Code No.	Name	Description	Used on (compatible for)
PB1	14437FX1	Flash	Flash and CAP board	
PB2	14444FX1	Power	Power board 100 FX 230VAC	
PB3	14447BX-FX100	Key board	Key board for all FX/BX **With BR100 = closed !**	Style FX/BX series 100FX, 100BX

Style 400 FX / 230V

Board	Code No.	Name	Description	Used on (compatible for)
PB1	14439FX4	Flash	Flash and CAP board	
PB2	14446BX4	Power	Power board 400 FX 230VAC	
PB3	14447BX-FX400	Key board	Key board for all FX/BX **With BR100 = open !**	Style FX/BX series 400FX, 400BX

Note :

For Key board configuration bridge BR100 see key board description!

Board differences, board variations

Key board

Unit type	BR100	BR101
100 FX	close	open
100 BX	close	open
400 FX	open	open
400 BX	open	open

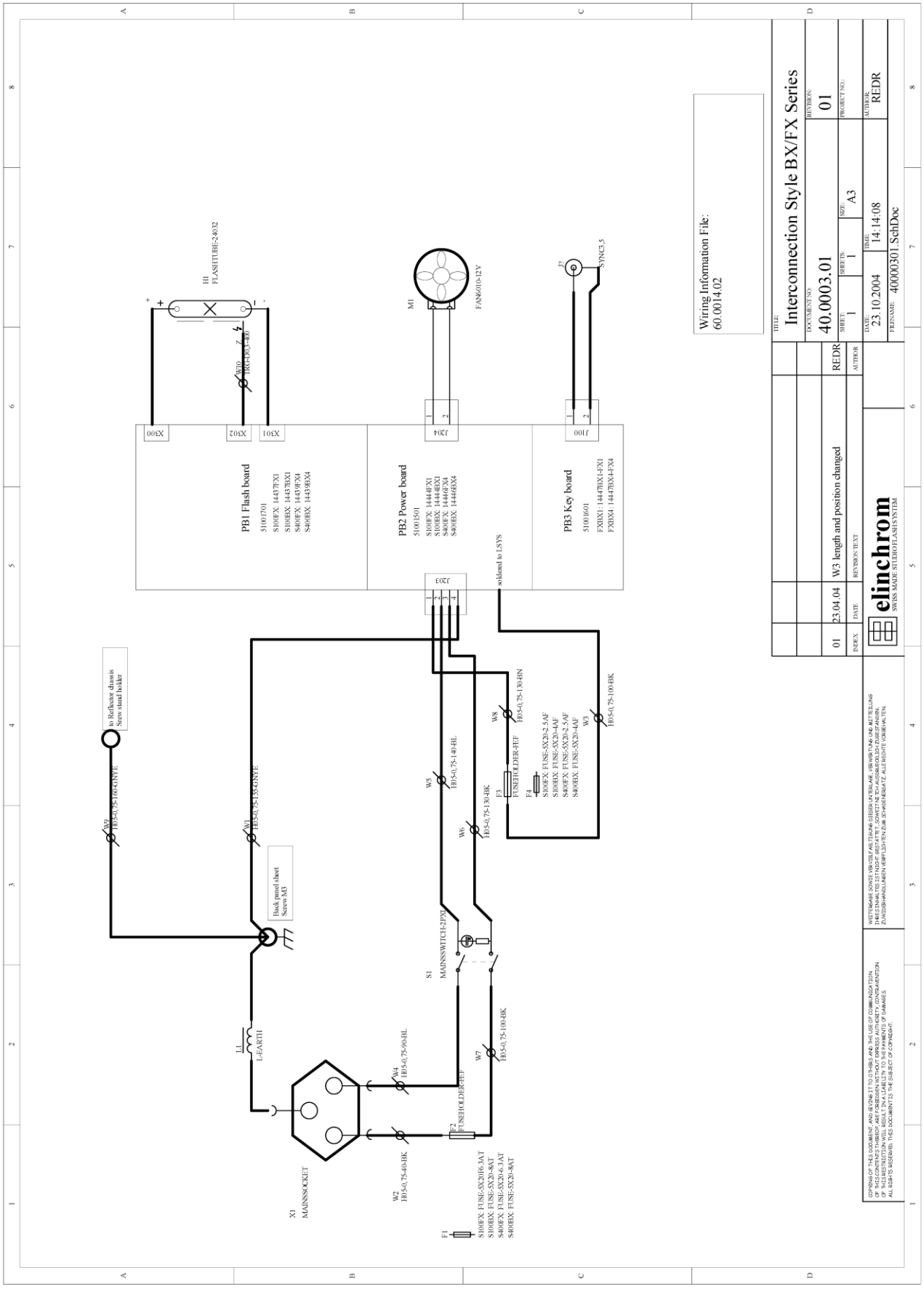
Power board

Unit type	C200, C202	C201, C203	K201
100 FX	assembled 150µF/385V	not assembled	not assembled
100 BX	assembled 150µF/385V	assembled 150µF/385V	assembled
400 FX	assembled 220µF/400V	not assembled	not assembled
400 BX	assembled 220µF/400V	assembled 220µF/400V	assembled

Flash board

Unit type	C301	C302	X300, X301	X302
100 FX	Code No.: 14343 1600µF/360V	not assembled	Code No.: 510.022 X-tube screw fix	Code No.: 101.064 Trigger wire
100 BX	Code No.: 14343 1600µF/360V	not assembled	Code No.: 112.101 X-tube screw change	Code No.: 224.017BX Trigger wire
400 FX	Code No.: 14342 2600µF/360V	Code No.: 14342 2600µF/360V	Code No.: 510.022 X-tube screw fix	Code No.: 101.064 Trigger wire
400 BX	Code No.: 14342 2600µF/360V	Code No.: 14342 2600µF/360V	Code No.: 112.101 X-tube screw change	Code No.: 224.017BX Trigger wire

Interconnection diagram

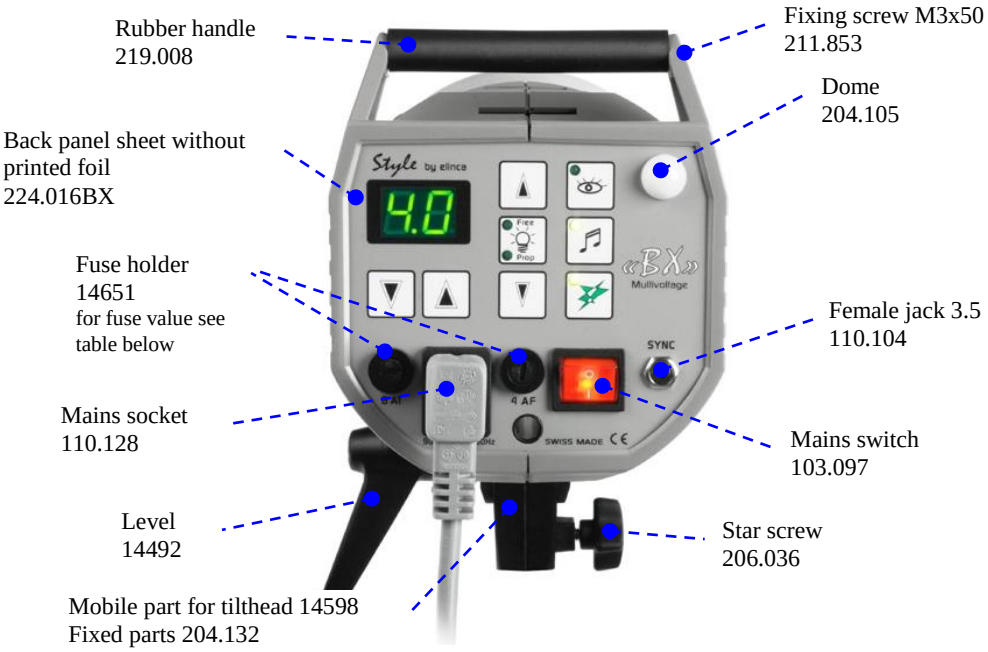


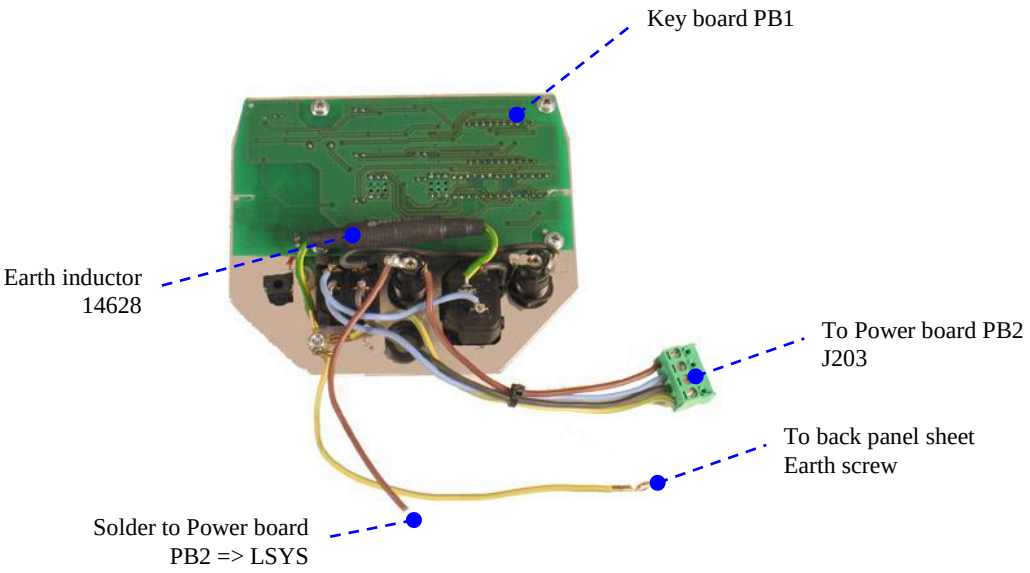
Mechanics

Back view Style FX/BX (all)

Fuses and back panel sheet

Version	Unit	Printed back panel foil / Code No.	Main fuse / Code No.(10 fuses)		Modelling fuse / code No.(10 fuses)	
			Type	Code No.	Type	Code No.
FX @ 230VAC	Style 100FX	224.218	6.3AT	19020	2.5AF	19033
	Style 400FX	224.218	6.3AT	19020	2.5AF	19033
BX @ 230VAC	Style 100BX	224.219	8AT	19022	4AF	19035
	Style 400BX	224.219	8AT	19022	4AF	19035

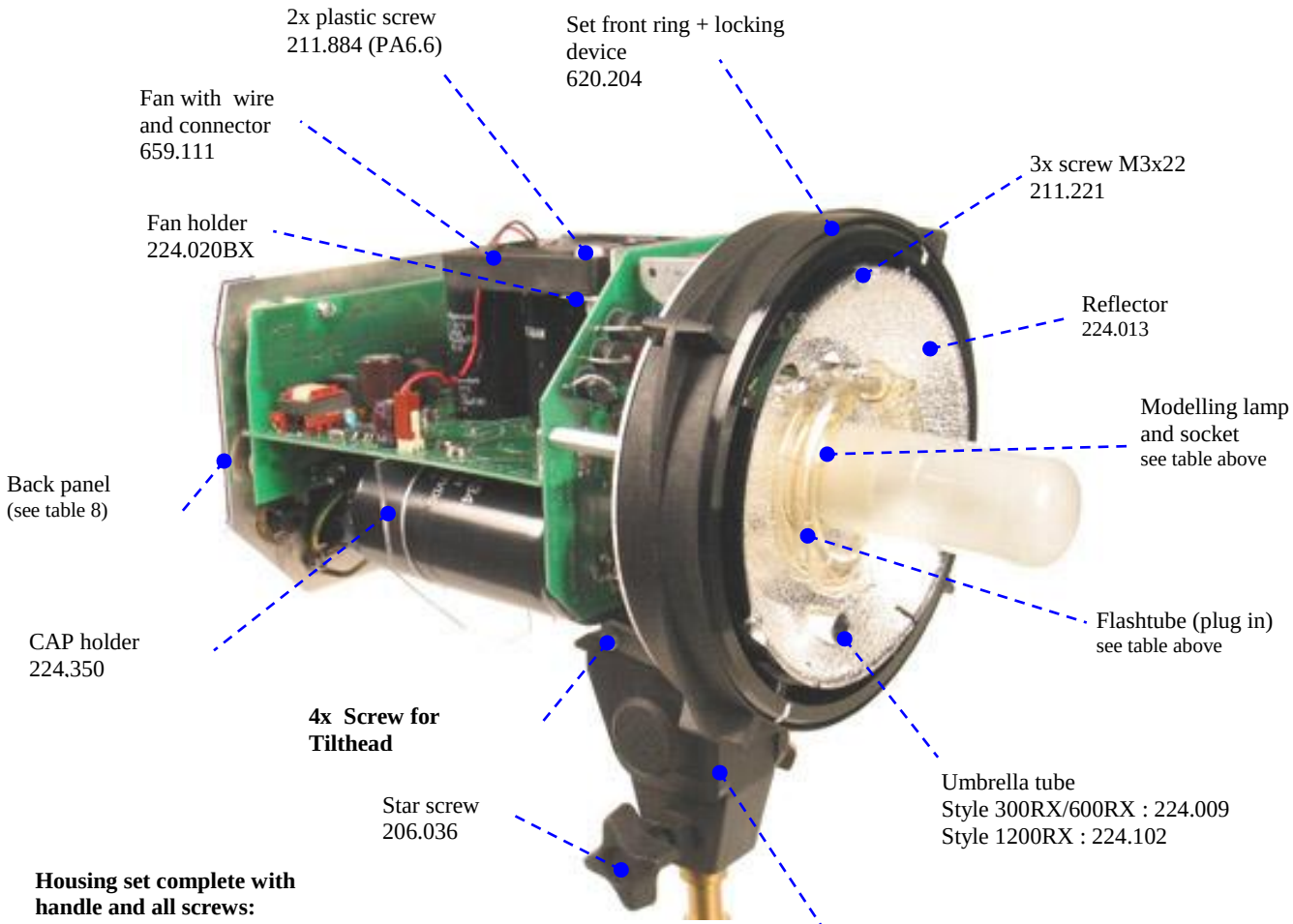




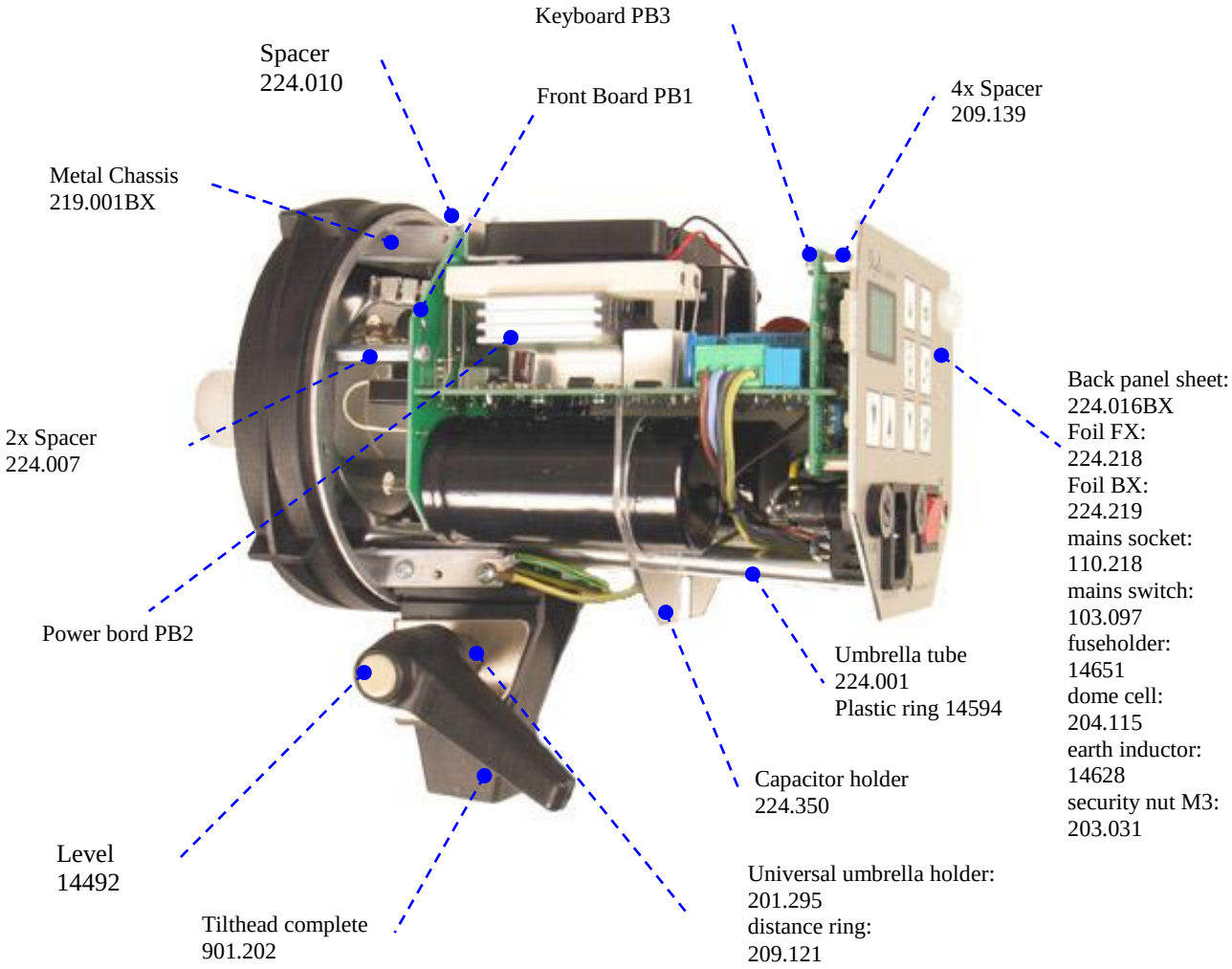
Front view (all)

Flashtube, Modelling lamp and reflector

Version	Unit	Flashtube Code No.	Modelling lamp		Modelling socket		Reflector Code No.
			Lamp type (E27)	Code No	Socket type	Code N°	Code N°
FX	Style 100 FX & Style 400 FX	24029	100W	23002	E27	112.017	224.013
BX @ 230VAC	Style 100 BX & Style 400 BX	24032	150W / 230V	23035	E27	112.017	224.013
BX @ 115VAC	Style 100 BX & Style 400 BX	24032	150W / 115V	23019	E27	112.017	224.013



Side view (all)



Service Menu

Unit Service check

Start service menu:

1. Switch unit "On" and select minimum power – wait until ready
2. Press the following buttons together: **MODUP + MODDOWN + BEEP**
3. Service menu is active

Exit service menu without store changes
=> Press **BEEP**

Store changes and exit
=> Press **CELL** when in service menu – all changes are saved

Change value
=> Press push button "12" PWRUP or "11" PWRDOWN to change setting

Menus

1. Read Unit Identity / Type (read only)
0: Style 100FX/BX
3: Style 400FX/BX

2. Temperature (IGBT) (read only)
Display in °C (only read)

3. 50/60Hz Mode (read only)
50 (Hz)
60 (Hz)

4. HTT Delay
1 .. 7: 100..700 ms delay time of enabling HTT

standard set is '0': approx. 100ms

Trouble Seeking Guide for Style FX / BX

Important Note

ALWAYS DISCHARGE UNIT BEFORE COMMENCING WORK !
(dèchargez l´appareil avant de commencer la travail)

Elinchrom repairing tools

INPUT CURRENT LIMITER with flash capacitor discharge
(code 11931)
This device limits the current that the unit may draw from the mains supply to around 1 ampere. This prevents damage due to shorts-circuits, slow down recharging and improves the voltage stabilisation.
With experience, the activity of the LIMITER lamp can give many clues regarding malfunctions in the unit.

Use flash capacitor discharge function included LIMITER

Known problems

Here is a small list of modifications or solutions with Style FX / BX troubles.

1. **Test push button and synchronisation problems**
   Only with key board 50.00016.01
   add an 100k Ohm (121.104) resistor between +5V (C110=>+5V) and 'TEST' push button S107 (high side to C105, R112)
2. **After replace of the Key board the power display range is not correct to 100Ws (0.1-4.0) or 400Ws (2.0-6.0) unit**
   Check the key board configuration solder bridge BR100 for configuration Style 100FX/BX (BR100=closed) and Style 400 FX/BX (BR100=open).
3. **Unit does not flash**
   Check flash board, trigger capacitors C304 and booster capacitor C303 voltage > 300V.
   If voltage is lower than 250V replace capacitors C303 and/or C304. Use only MKP4 capacitors from EPCOS or order original ELINCHROM capacitors code No. 104.135.
   Sometimes the flash tube is the problem. Try to replace for test!
4. **Unit will not go READY, no charge of the flash capacitors**
   Check power board, comparator U200 = LM397MF if output Pin 4 = lower than 0.5V.
   U200-Pin4 < 0.5V => unit will charge or hold flash capacitor voltage
   U200-Pin4 > 3V => flash capacitors charged to correct power setting
   Replace U200 – please order with "LM397MF" at ELINCHROM
5. **No or bad Buzzer tone**
   Add a solder bridge over R121 or replace R121 against a 0 Ohm bridge.
6. **Damaged charge circuit on power board**
   Check all charge diodes on the power board D200-D205. Replace capacitor C200 and add an insulation tape under C200 before you solder the new one. Check the via contacts under C200.
7. **Damaged flash capacitor**
   If one flash capacitor is broken, check both and exchange the damaged ones. If only one is damaged you do not need to exchange both!
8. **After flash trigger the unit is not working anymore with wrong or no display**
   Change resistor R100 to 470R! and add a capacitor of 100nF/50V (ceramic) on Micro-Controller U101-Pin1 und Ground (i.e. solder plane on bottom side or U102-Pin8)
9. **Broken power supply circuit D208, U202, C218**
   Replace all components and change D208 to the type S2M (2Amps SMD diode)!

Error Message

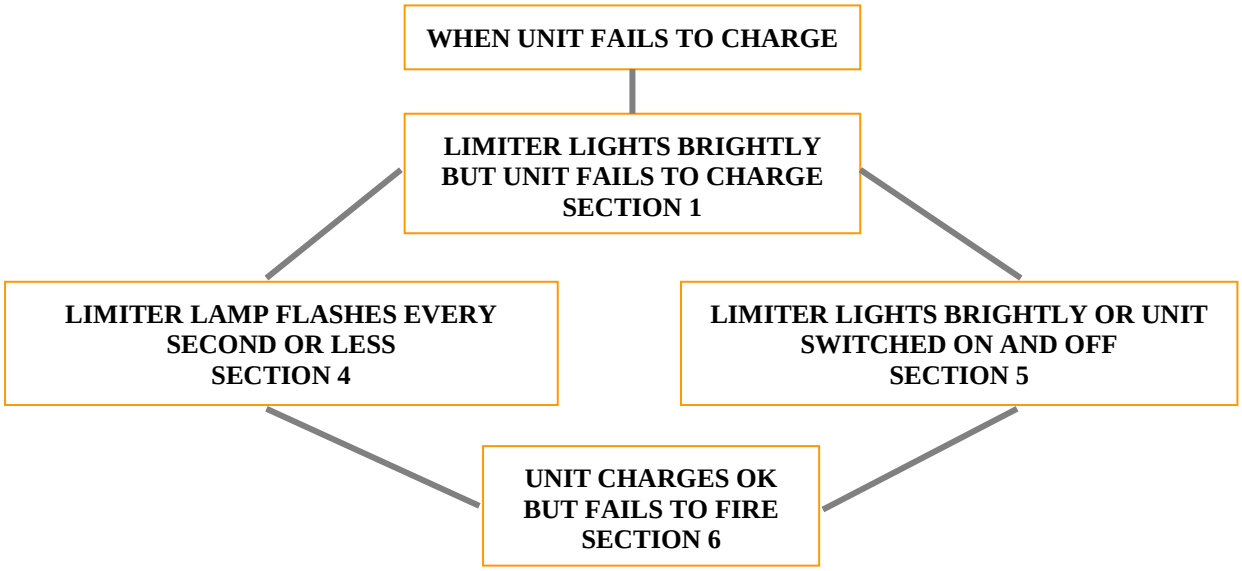
This error messages are shown by the units display if an error is detected by the units Micro-Controller.

Error Message Display Value	Description	Check	Note
E 1	Over voltage protection or Temperature Sensor Fault	PB2: Check maximum flash capacitor voltage PB2: Check D209	1
E 2	Over temperature	Unit is overheated – wait cooling	2
E 3	Discharge time out error	PB2: T200 PB2: T202	3
E 4	Charge time out error	PB2: Check charge circuit T204 PB2: Doublers, D200-D205	4
E 5	Main supply zero detect error	PB1: Check circuit T208-T210	5
E 6	After charge time out error	PB2: Check charge circuit T204	6

Note1: Temperature sensor D209 with 10mV/°C(=> 0°C=2,73V, 25°C=2,98V; 80°C=3,53V)
Note2: Over temperature is detected Temp.>90°C on heat sink, Normal mode if Temp.<70°C
Note3: Discharge time out after approx. 100 seconds without READY
Note4: Charge time out after approx. 25 seconds without READY
Note5: The Micro detects each zero crossing of the mains supply voltage. This signal is needed for triggering modelling lamp.
Note6: After charge time out after approx. 50 seconds without recharge

Repairing Help

Note: Switch off modelling lamp for charge fault diagram



1. Fault tracing for blown fuse

- Wrong value fuse
- PB4 Charge circuit T204 or D212 short circuit
- PB3 Charge diodes D200-D205 short circuit
- PB4 Charge driver circuit U200, OK200
- Photo flash capacitor short circuit

2. Replacing a Photo flash capacitor

- Always discharge the unit before commencing work!
- Check that there is no voltage across the new capacitors!

WHEN A PHOTO FLASH CAPACITOR IS BEING REPLACED. IT MUST BE REFORMED
WITH THE LIMITER IN LINE SET THE UNIT TO MINIMUM

3. Modelling lamp circuitry does not function

- Modelling lamp fuse blown (quick acting)
- Blown bulb
- PB2: check T207, R218, C209
- PB3: Check Signal MODTRG (100Hz or 120Hz. Pulse 5V)
- PB1: Check Signal MOD_T when Modelling lamp function is active

4. Fault tracing for discharge resistor failure (E3)

- PB2: Check R212 and R2304 (6.8k Ohm 17W)
- PB2: Check MOSFET T200 and T202 (driver)

5. Fault tracing for charge failure or charge error message (E4)

- PB2: check D200-D205, T204, D212 and doubler capacitors
- PB1: Check flash capacitor short circuit (C301, C302)

6. Fault tracing for firing faults

- Cracked flashtube
- PB1: check Trigger voltage at capacitor C303 (Booster) and C304 (Trigger) (0.1µF/400V => MKP4 type only)
- PB1: check Trigger Boost circuitry D300, D301, R300, C300
- Check READY LED (if off triggering flash tube is not possible)
- PB3: push button S107, T103 and T104, U100
- See “Known Problems” too

When there is no voltage present across the trigger capacitor try replacing D300 1N4007 Diode. This sometimes reads OK but is often ‘leaky’ when a voltage is applied.

Special circuitry and Graphs

MOSFET charge circuitry

ATTENTION:
Measurement GND (-) is HIGH VOLTAGE

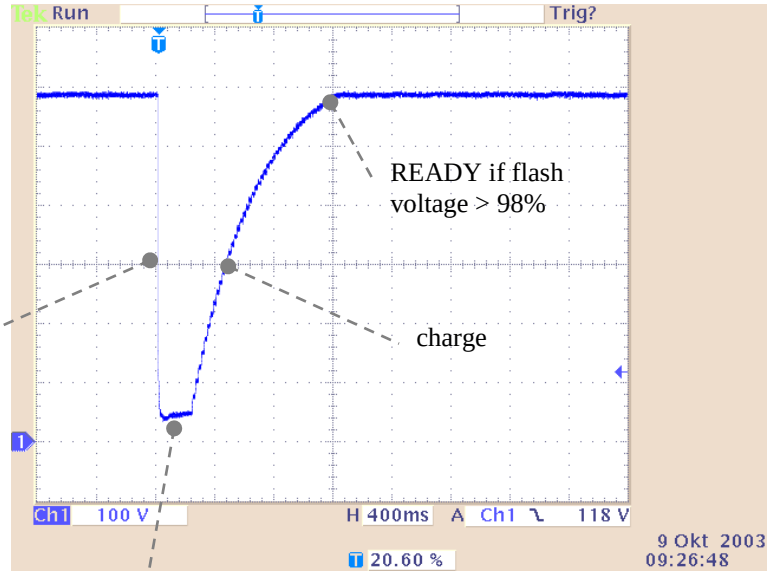
Measurement GND (-): D212 (Anode)
Gate supply voltage (18V): D213(Cathode)

Function:
The MOSFET enables and disables flash capacitor charge. The Gate supply voltage is generated by R200, R2011, D212, D213 and C215 and is 18VDC. The Gate driver electronic includes a soft start function with T203 and T205.

On damage or malfunction change always T203, T205, T204 and D217 together and check all resistor and capacitor values.

Flash voltage HTD (PB1)

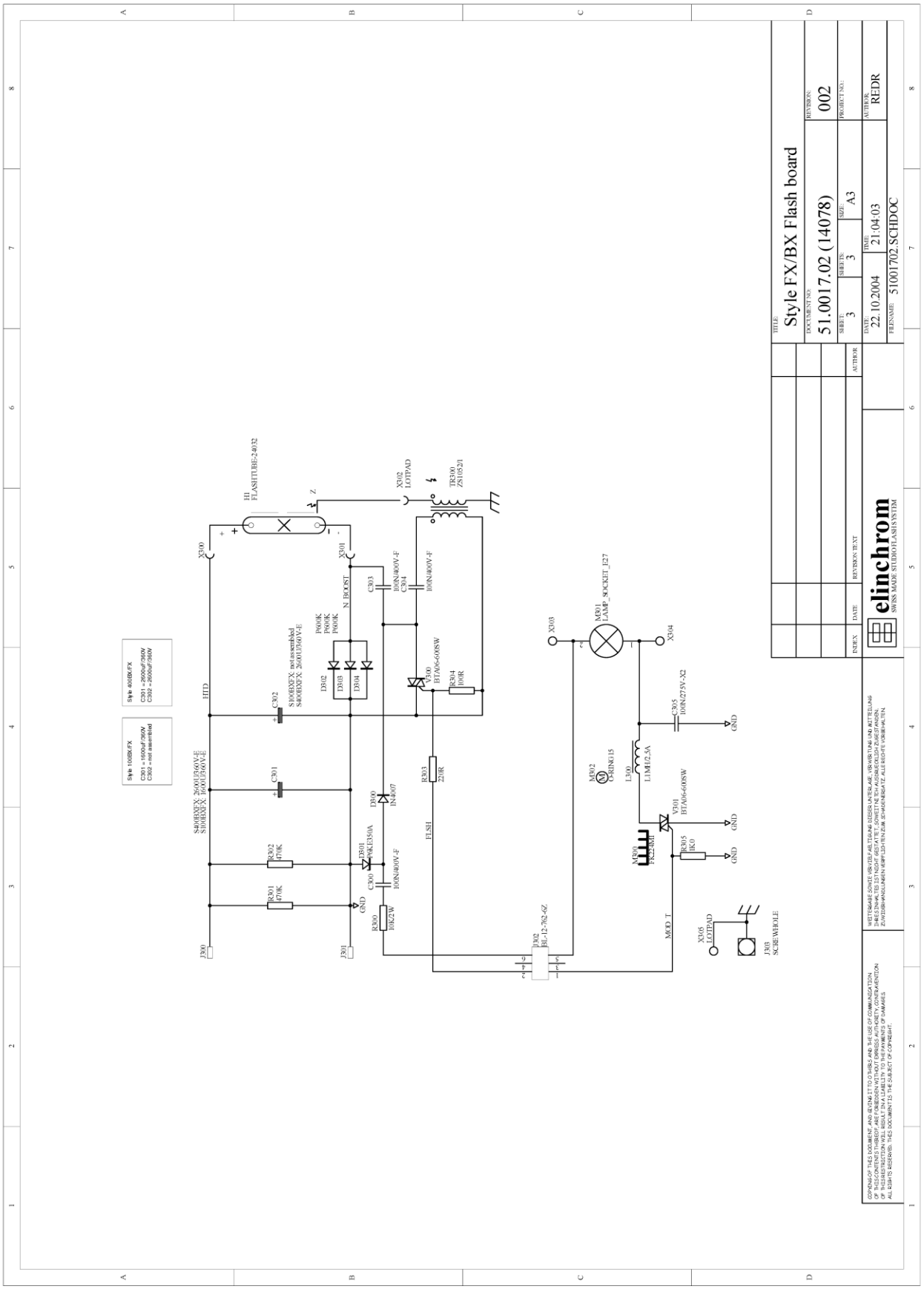
The Style FX/BX series has a absolute stabile flash voltage and f-stop stability. The READY signal is generated only if the flash voltage is greater than 98% of the f-stop setting.



Delay time 150ms - 1.0sec.
Standard value approx. 200ms

PB1 Flash board

Schematics



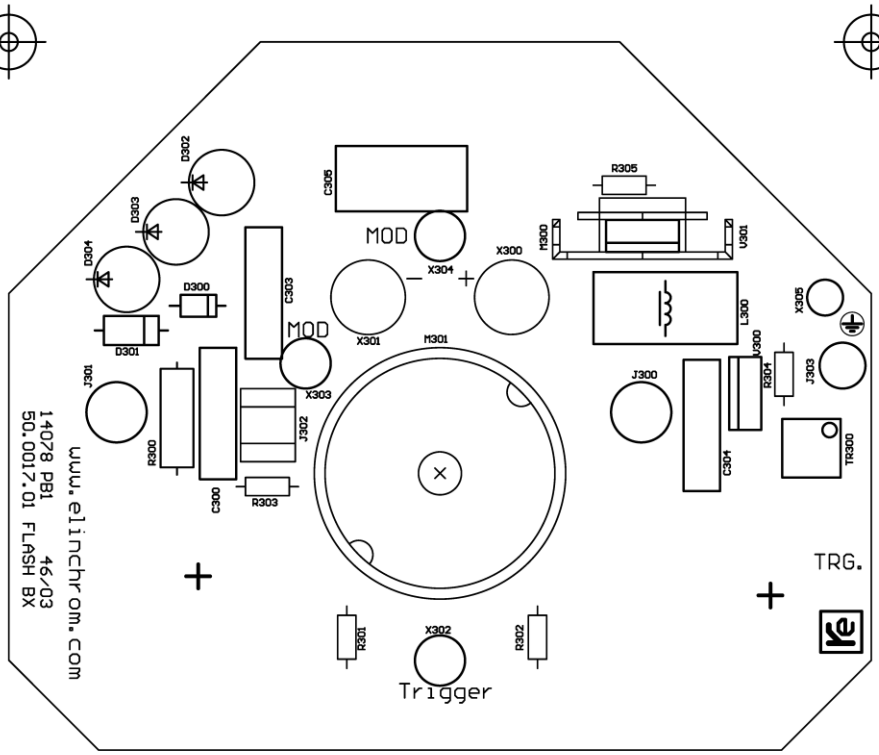
Bill of materials

Pos.	Quantity	DESIGNATOR	PARTTYPE	ELINCA_NO	DESCRIPTION
1	3	C300, C303, C304	100N/400V-F	104.135	Capacitor MKP4 400V
2	1	C305	100N/275V-X2	104.129	Capacitor X2
3	1	D300	1N4007	14009	Diode
4	1	D301	P6KE350A		Diode
5	3	D302, D303, D304	P600K	105.050EDI	Diode
6	1	J302	BL-12-762-6Z		Female Connector 2,54 2x3pol.
7	1	L300	L1MH/2,5A	100.047	Thyristor Inductor 300W
8	1	M300	FK224MI		Heatsink TO220 18K/W
9	1	M301	LAMP_SOCKET_E27	112.017	E27 lamp socket
10	1	M302	O-RING15		O-Ring for choke fixation da=15mm, d=2,5mm
11	1	R300	10K/2W		Resistor 2W 2%
12	2	R301, R302	470K		Resistor 1%
13	1	R303	220R	121.229	Resistor 1%
14	1	R304	100R		Resistor 1%
15	1	R305	1K0	121.102	Resistor 1%
16	1	TR300	ZS1052/1	100.060	Trigger Coil 15kV
17	2	V300, V301	BTA06-600SW		Triac
			Style 100 FX (14437FX1)		
18	1	C301	1600U/350V-E	14343	Flash Capacitor 1600U/360V
19	2	X300, X301	X-TUBE-SCREW FIX	510.022	Flash tube terminals FIX
20	1	X302	Trigger wire	101.064	Trigger wire for fix flash tube
21	1		Glas insulation tube	209.131BX	Glas insulation tube for trigger wire
			Style 100 BX (14437BX1)		
18	1	C301	1600U/350V-E	14343	Flash Capacitor 1600U/360V
19	2	X300, X301	X-TUBE-SCREW CHANGE	112.101	Flash tube terminals for changeable flash tube
20	1	X302	Trigger contact fork	224.017BX	Trigger wire for fix flash tube
21	1		Glas insulation tube	209.131BX	Glas insulation tube for trigger wire
			Style 400 FX (14439FX4)		
18	1	C301, C302	2600U/350V-E	14342	Flash Capacitor 2600U/360V
19	2	X300, X301	X-TUBE-SCREW FIX	510.022	Flash tube terminals FIX
20	1	X302	Trigger wire	101.064	Trigger wire for fix flash tube
21	1		Glas insulation tube	209.131BX	Glas insulation tube for trigger wire
			Style 400 BX (14439BX4)		
18	1	C301, C302	2600U/350V-E	14342	Flash Capacitor 2600U/360V
19	2	X300, X301	X-TUBE-SCREW CHANGE	112.101	Flash tube terminals for changeable flash tube
20	1	X302	Trigger contact fork	224.017BX	Trigger wire for fix flash tube
21	1		Glas insulation tube	209.131BX	Glas insulation tube for trigger wire

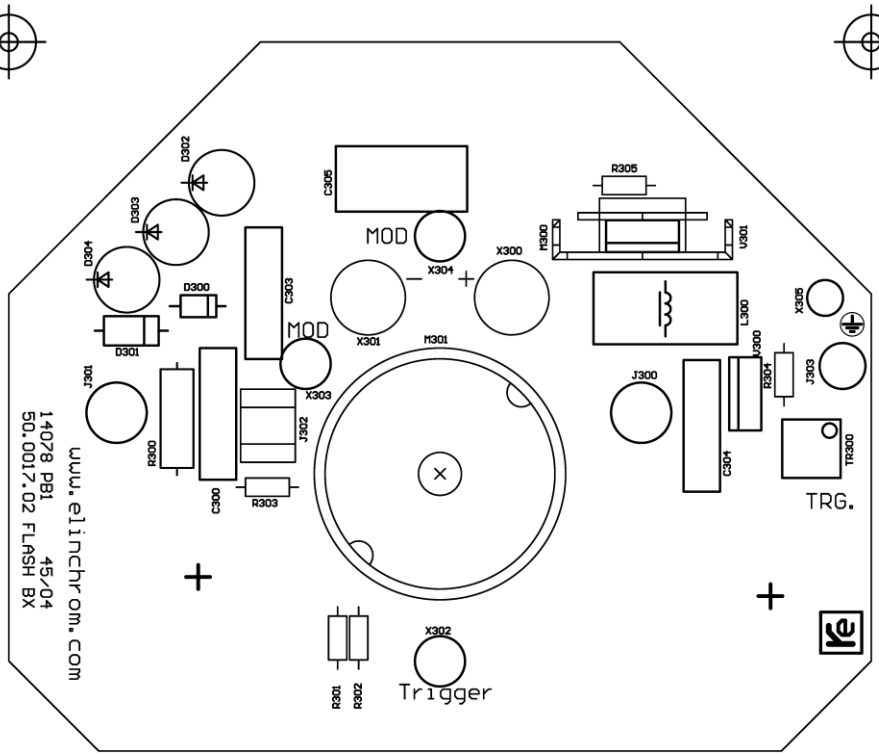
Assembly drawing PB1

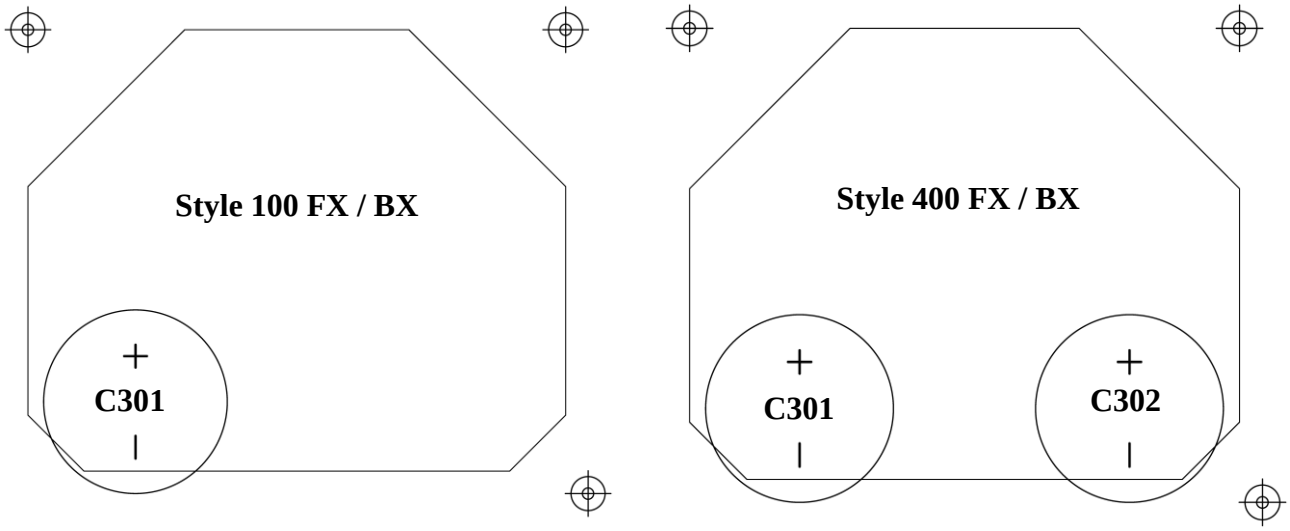
14437FX1 & 14437BX1

Version 50.0017.01



Version 50.0017.02





NOTE:

Version 50.0017.01 can replaced by the newer version 50.0017.02 and
Version 50.0017.02 can replaced by version 50.0017.01!

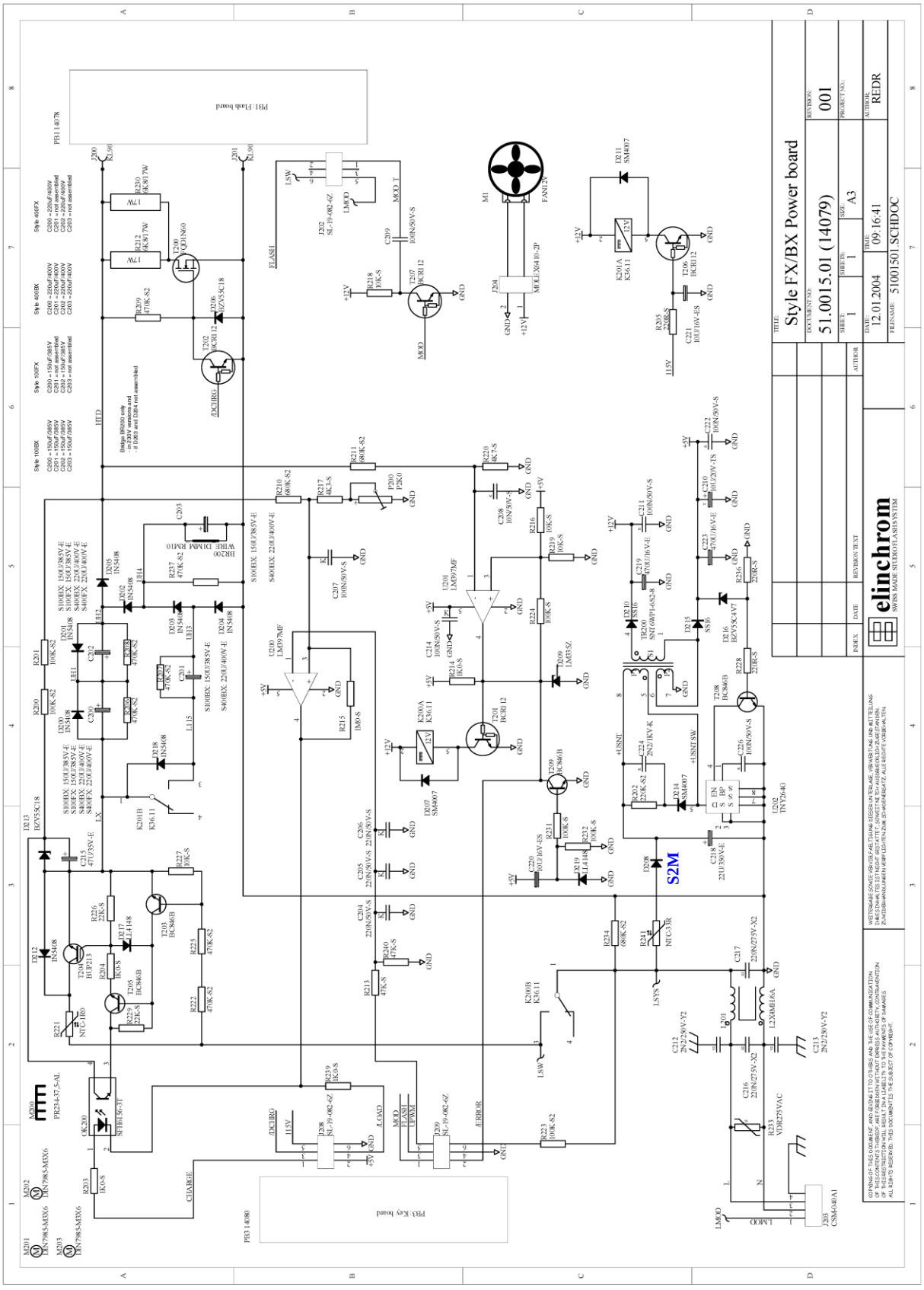
V300, V301 (BTA08-
600SW, BTA06-600SW, ..)
Triac

1 = Gate
2 = A2
3 = A1

PB2 Power board

14444FX1 & 14444BX1 & 14446FX4 & 14446BX4

Schematics



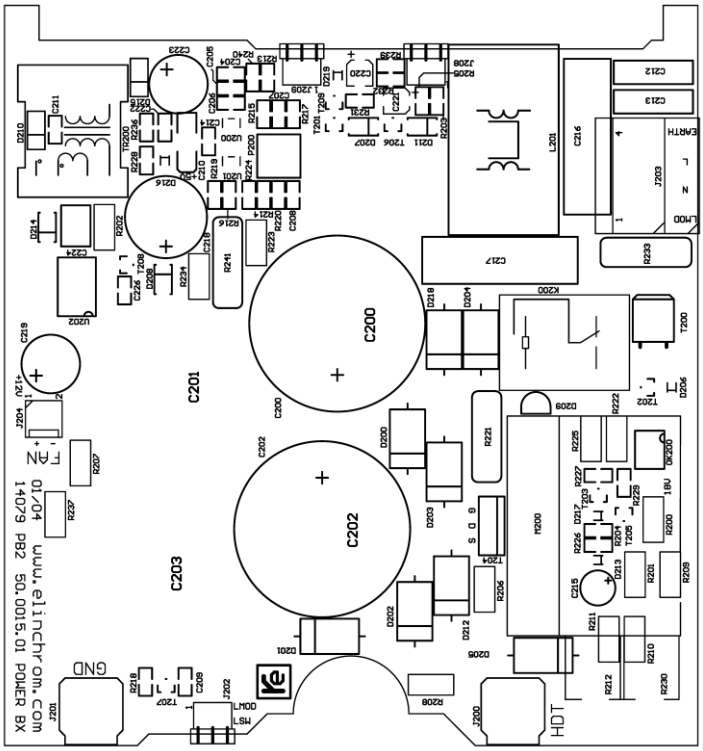
Bill of materials

Pos.	Quantity	DESIGNATOR	PARTTYPE	ELINCA_NO	DESCRIPTION
			Style 100 FX		
1a	2	C200 C202	150U/385V-E	104.123	Capacitor
			Style 100 BX		
1b	4	C200 C201 C202 C203	150U/385V-E	104.123	Capacitor
			Style 400 FX		
1c	2	C200 C202	220U/400V-E	104.107	Capacitor
			Style 400 BX		
1d	4	C200 C201 C202 C203	220U/400V-E	104.107	Capacitor
			ALL		
2	3	C204 C205 C206	220N/50V-S		Capacitor SMD
3	6	C207 C209 C211 C214 C222 C226	100N/50V-S		Capacitor SMD
4	1	C208	10N/50V-S		Capacitor SMD
5	1	C210	10U/20V-TS		Capacitor Tantal SMD
6	2	C212 C213	2N2/250V-Y2	104.106	Capacitor Y2
7	1	C215	47U/35V-E	104.033	ELKO
8	2	C216 C217	220N/275V-X2	104.130	Capacitor X2
9	1	C218	22U/350V-E		Capacitor
10	2	C219 C223	470U/16V-E	104.053	ELKO
11	2	C220 C221	10U/16V-ES		ELKO SMD
12	1	C224	2N2/1KV-K		Capacitor Ceramic
13	8	D200 D204 D201 D202 D203 D205 D212 D218	1N5408	14430	Diode
14	2	D206 D213	BZV55C18		Diode Zener
15	3	D207 D211 D214	SM4007		Diode 1A 1000V SMD
16	1	D209	LM335Z	105.201	Sensor Temp.
17	2	D210 D215	SS16		Shottky 1A Diode SMD
18	1	D216	BZV55C4V7		Diode Zener
19	2	D217 D219	LL4148		Diode SMD
20	2	J200 J201	KL90		LP-Screw-Connector
21	3	J202 J208 J209	SL-19-082-6Z		Male Connector 2,54 2x3pol. 90°
22	1	J203	CSM-040A1	110.135	Power Connector 4 pol.
23	1	J204	MOLEX6410-2P	110.072	Connector 2P LP
			Style 100 FX & Style 400 FX		
24ac	1	K200	K36.11	100.040	Relais 10A 12V
			Style 100 BX & Style 400 BX		
24bd	2	K200 K201	K36.11	100.040	Relais 10A 12V
			ALL		
25	1	L201	L2X4MH/6A		Inductor 2x 4mH 6A

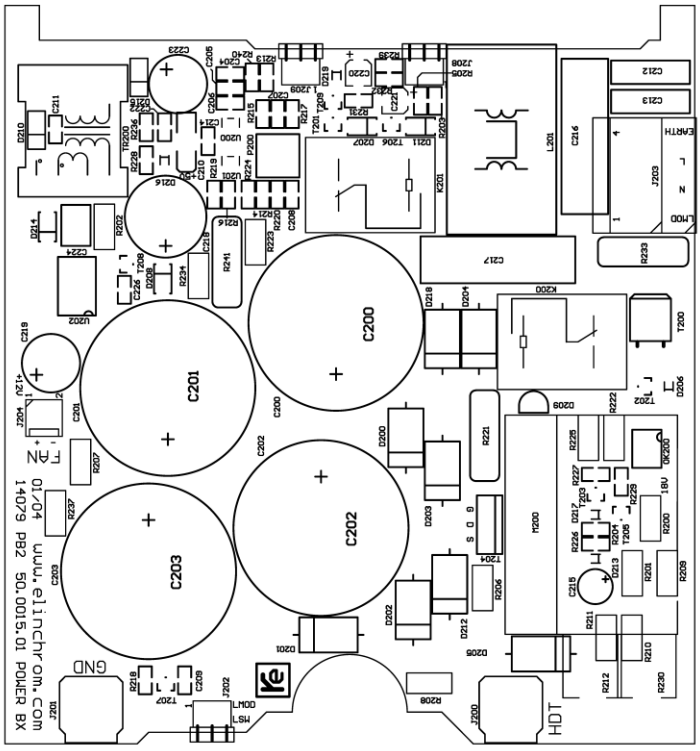
26	1	M200	PR234-37,5-AL		Heatsink
27	3	M201 M202 M203	DIN7985-M3X6	211.139	SCREW DIN7985 M3x6
28	1	OK200	SFH6156-3T		Optocoupler Transistor SMD
29	1	P200	P2K0	109.023	Trimmer
30	3	R200 R201 R223	100K-S2		Resistor 5% 1W SMD
31	1	R202	220K-S2		Resistor 5% 1W SMD
32	4	R203 R204 R214 R239	1K0-S		Resistor 1% SMD
33	3	R205 R228 R236	220R-S		Resistor 1% SMD
34	7	R206 R207 R208 R209 R222 R225 R237	470K-S2		Resistor 5% 1W SMD
35	3	R210 R211 R234	680K-S2		Resistor 5% 1W SMD
36	2	R212 R230	6K8/17W		Resistor 17W
37	2	R213 R240	47K-S		Resistor 1% SMD
38	1	R215	1M0-S		Resistor 1% SMD
39	4	R216 R218 R219 R227	10K-S		Resistor 1% SMD
40	1	R217	4K3-S		Resistor 1% SMD
41	1	R220	4K7-S		Resistor 1% SMD
42	1	R221	NTC-1R0		NTC 1R0 16A
43	3	R224 R231 R232	100K-S		Resistor 1% SMD
44	2	R226 R229	22K-S		Resistor 1% SMD
45	1	R233	VDR275VAC	111.061	Varistor 275VAC
46	1	R241	NTC-33R		NTC 33R
47	1	T200	FQD1N60		MOSFET 600V 1A
48	4	T203 T205 T208 T209	BC846B		Transistor SMD
49	1	T204	BUP213		IGBT 32A
50	4	T206 T201 T202 T207	BCR112		Transistor SMD R1/R2=4k7
51	1	TR200	SNT6WP1-6S2-8		Transformator SNT 6VA 85-265V 1x8V 1x6V
52	2	U200 U201	TL331IDBVR		COMP SMD
53	1	U202	TNY264G		Switch Mode Controller 6W
54	1	D208	S2M		2 Amps. SMD diode

Assembling drawings

Style 100FX/400FX



Style 100BX/400BX

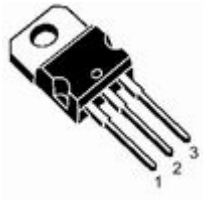


Flash voltage adjustment (for PCB 50.0015.01..02 only)

Flash voltage adjustment for all Style FX/BX units

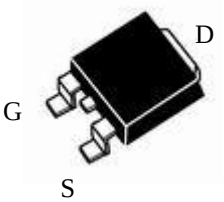
- Open the discharged unit
- Connect the plus pole of the Voltmeter (set to High Voltage >600V) to PB2 Measurement pin "HDT" (screw contact PB1⇔PB2)
- Connect the negative pole of the Voltmeter to PB2 Measurement pin "GND" (screw contact PB1⇔PB2)
- Connect unit to mains supply and switch unit on
- Check Voltmeter if voltage is always lower than 355V
- Increase the power to maximum and check always the flash voltage
- Adjust P200 @ full power to a maximum flash voltage of 350V for Style 400 FX/BX and 355V for Style 100 FX/BX

T204 (BUP213 / IGBT)
(or GP15N120)



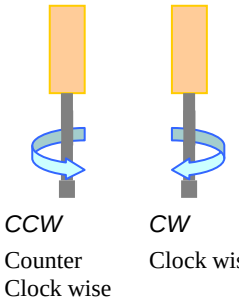
1 = Gate
2 = Collector
3 = Emitter

T200 (FQD1N60 / MOSFET)



Flash voltage adjustment (for PCB 50.0015.03 and higher)

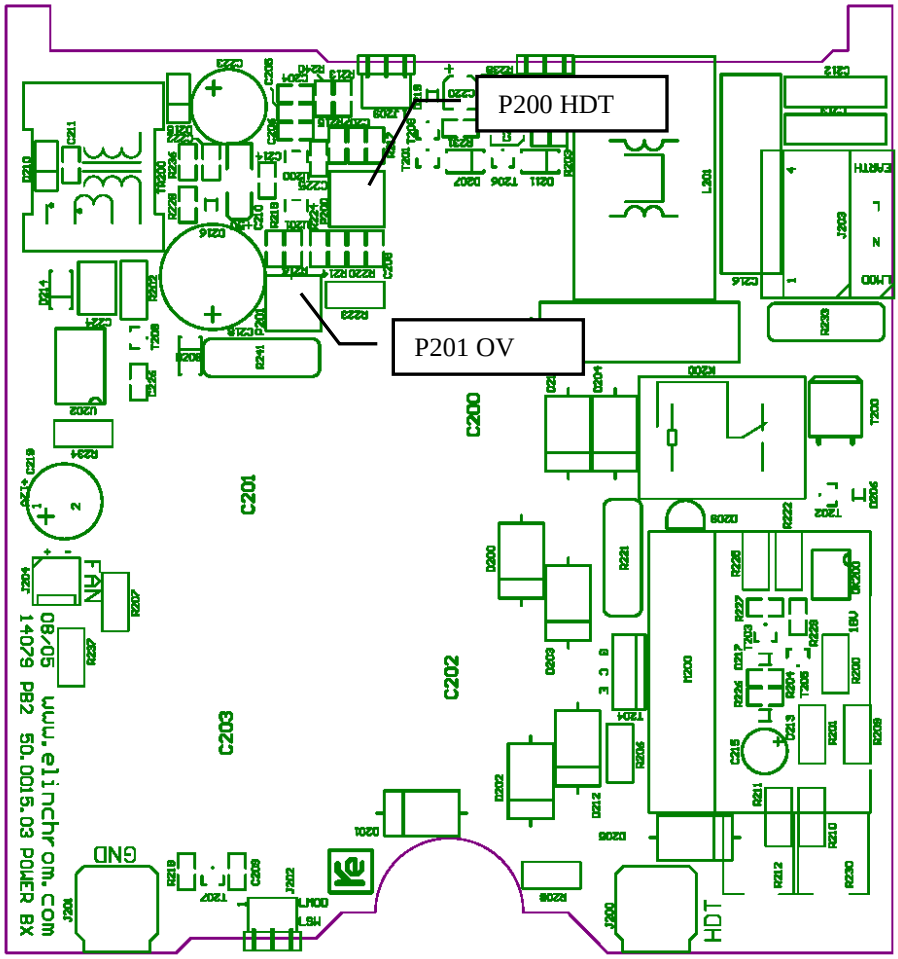
Flash voltage adjustment for all Style FX/BX units



Adjust Trimmer **P200** and **P201** to default positions:

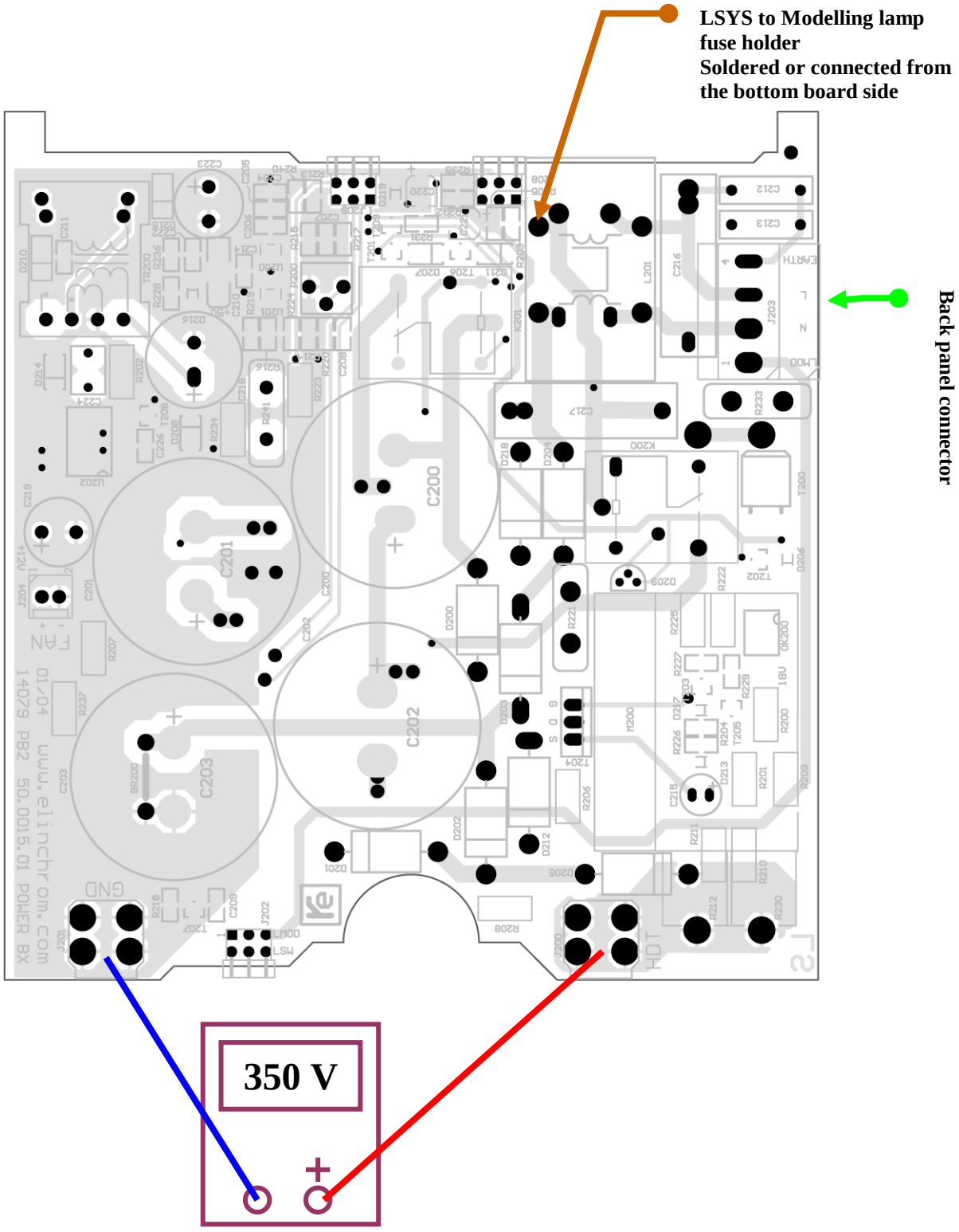
- **P200** (HDT) left turn to end position (CCW)
- **P201** (OV) right turn to end position (CW)

1. Connect Voltmeter (select High-Voltage 500V/1000 VDC) to Power board connectors or to Flash tube connectors.
2. Connect mains power 115V or 23 0VAC 50/60 Hz
3. Switch UNIT **ON**
4. **check Voltmeter U_{HDT} < 330 VDC**
   - if U_{HDT} > 330 VDC then switch unit **OFF immediately** ➔ check Trimmer positions ➔ or electronic fault!
5. Flash 5 times to format flash capacitors
6. **Set Power setting to P_{Max} (Style 100 FX/BX = 4.0, Style 400 FX/BX =6.0)**
7. **check** Voltmeter **U_{HDT} < 330 VDC**
   - if U_{HDT} > 330 VDC then switch unit **OFF immediately** ➔ check Trimmer positions ➔ or electronic fault!
8. Adjust **P200 CW** to U_{HDT} = 370VDC (368..372 VDC)
9. Adjust **P201 CCW**, slowly in small steps, until Power relay switched **OFF** (➔ Display Fault "E1")
10. Switch UNIT **OFF**
11. Adjust **P200 CCW** until end position and wait minimum 30 seconds!
12. Switch UNIT **ON** again.
13. Adjust **P200 CCW** to
    STYLE 100 FX/BX ➔ U_{HDT} = 335 VDC (332..337 VDC)
    STYLE 400 FX/BX ➔ U_{HDT} = 350 VDC (348..353 VDC)
14. Flash 5-times to format flash capacitors
15. Switch Mains supply **OFF**
16. **Wait until flash voltage is discharged, or discharge with external discharge resistor!**



ATTENTION:

Discharge and Check always the flash capacitor and the doubler voltage (4 doublers for Bi-Voltage version, 2 doublers for 230V version) for HIGH VOLTAGE before touching or handling the electronic module!

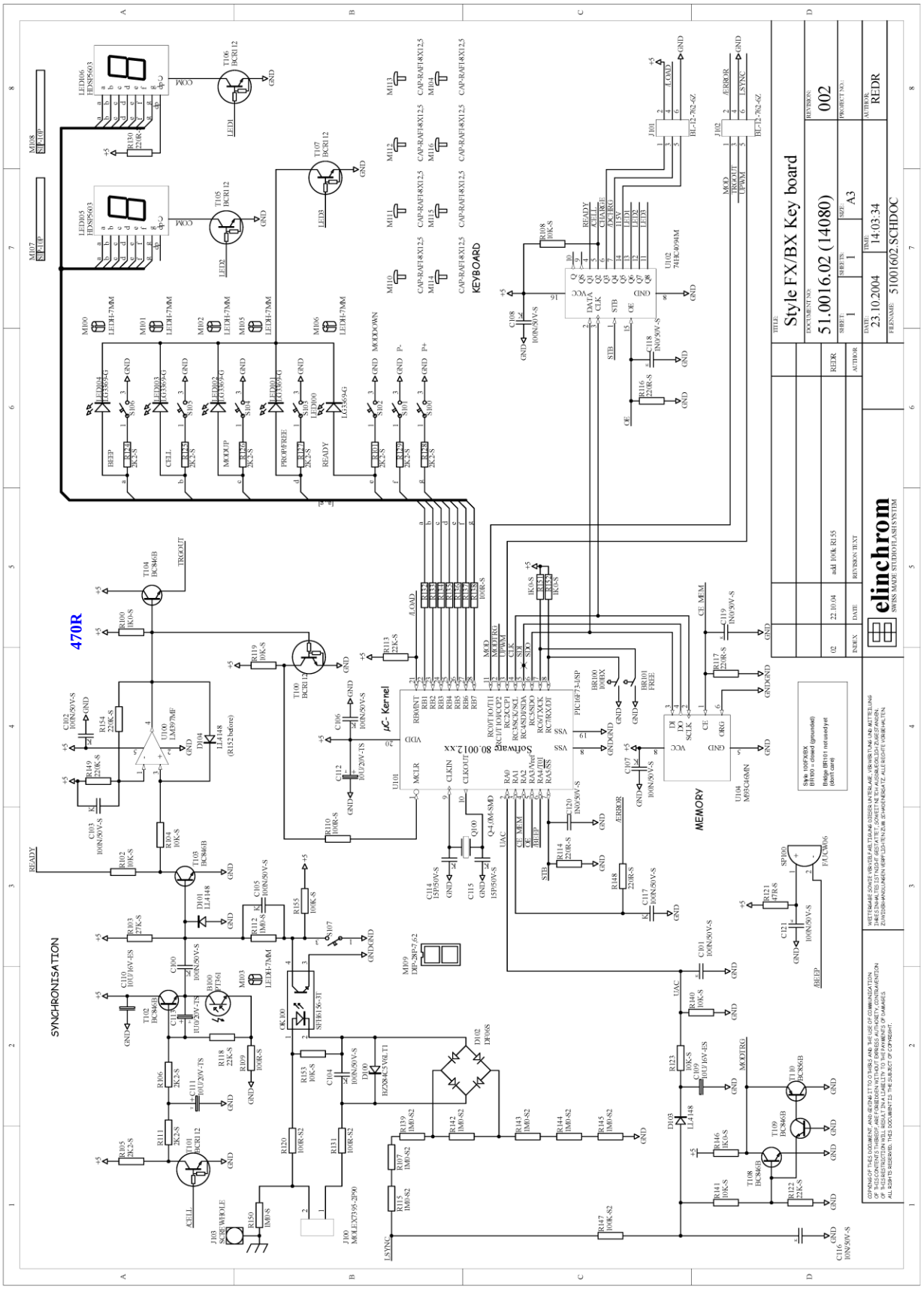

LSYS to Modelling lamp fuse holder
Soldered or connected from the bottom board side
Back panel connector
350 V
+

PB3 Key-, Control board

14447BX1-FX1 & 14447BX4-FX4

Schematics

Note !
The electronic board is part of Exchange Service



Bill of materials

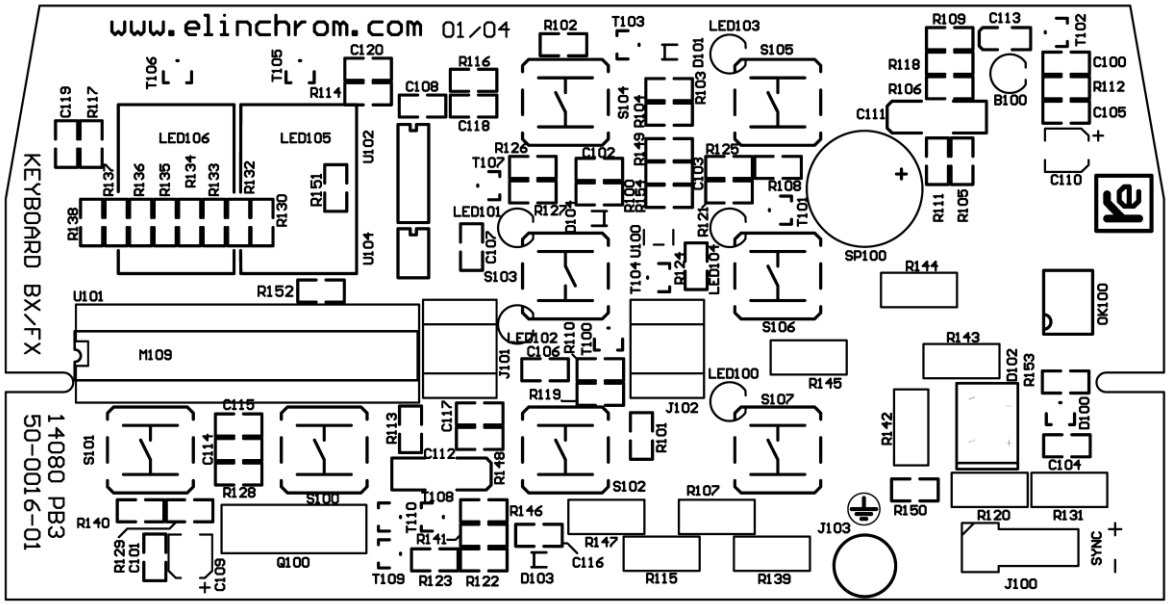
Pos.	Quantity	DESIGNATOR	PARTTYPE	ELINCA_NO	DESCRIPTION
1	1	B100	PT361	105.028	Sensor Photo
2	11	C100, C101, C102, C103, C104, C105, C106, C107, C108, C117, C121	100N/50V-S		Capacitor SMD
3	2	C109, C110	10U/16V-ES		ELKO SMD
4	2	C111, C112	10U/20V-TS		Capacitor Tantal SMD
5	1	C113	1U0/20V-TS		Capacitor Tantal SMD
6	2	C114, C115	15P/50V-S		Capacitor SMD
7	1	C116	10N/50V-S		Capacitor SMD
8	3	C118, C119, C120	1N0/50V-S		Capacitor SMD
9	1	D100	BZX84C5V6LT1		Z-Diode 5.6V SOT-23
10	3	D101, D103, D104	LL4148		Diode SMD
11	1	D102	DF06S		Diode Bridge
12	1	J100	MOLEX7395-2P90		Connector 2P LP 90°
13	2	J101, J102	BL-12-762-6Z		Female Connector 2,54 2x3pol.
14	5	LED100, LED101, LED102, LED103, LED104	LG3369-G	108.031	3mm LED
15	2	LED105, LED106	HDSP5603	105.158	LED 7SEG green
16	6	M100, M101, M102, M103, M105, M106	LEDH-7MM	108.030	LED distance holder h=7mm
17	8	M104, M110, M111, M112, M113, M114, M115, M116	CAP-RAFI-8X12,5		Push button cap 8mm
18	2	M107, M108	SIP-10P		Single Inline Socket 10P
19	1	M109	DIP-28P-7,62		Dual Inline Socket 28P 7,62mm
20	1	OK100	SFH6156-3T		Optocoupler Transistor SMD
21	1	Q100	Q-4,0M-SMD		Quarz SMD
22	3	R146, R151, R152	1K0-S		Resistor 1% SMD
23	10	R101, R105, R106, R111, R124, R125, R126, R127, R128, R129	2K2-S		Resistor 1% SMD
24	8	R102, R104, R108, R119, R123, R140, R141, R153	10K-S		Resistor 1% SMD
25	1	R103	27K-S		Resistor 1% SMD
26	7	R107, R115, R139, R142, R143, R144, R145	1M0-S2		Resistor 5% 1W SMD
27	9	R109, R110, R132, R133, R134, R135, R136, R137, R138	100R-S		Resistor 1% SMD
28	2	R112, R150	1M0-S		Resistor 1% SMD
29	3	R113, R118, R122	22K-S		Resistor 1% SMD
30	5	R114, R116, R117, R130, R148	220R-S		Resistor 1% SMD
31	2	R120, R131	100R-S2		Resistor 5% 1W SMD
32	1	R121	47R-S		Resistor 1% SMD

33	1	R147	100K-S2		Resistor 5% 1W SMD
34	2	R149, R154	220K-S		Resistor 1% SMD
35	1	R155	100K-S		Resistor 1% SMD
36	8	S100, S101, S102, S103, S104, S105, S106, S107	RACON-8H-S		Push button SMD
37	1	SP100	F/UCW06	107.025	Buzzer 5V with electronic
38	5	T100, T101, T105, T106, T107	BCR112		Transistor SMD R1/R2=4k7
39	5	T102, T103, T104, T108, T109	BC846B		Transistor SMD
40	1	T110	BC856B		Transistor SMD
41	1	U100	TL331IDBVR		COMP SMD
42	1	U101	PIC16F73-I/SP	105.145	uC Microchip Flash 28 pol. Out +/-200mA
43	1	U102	74HC4094M		Seriell-parallel converter SMD
44	1	U104	M93C46MN		EEPROM SMD 1MBit
45	1	R100	470R-S		Resistor 1% SMD

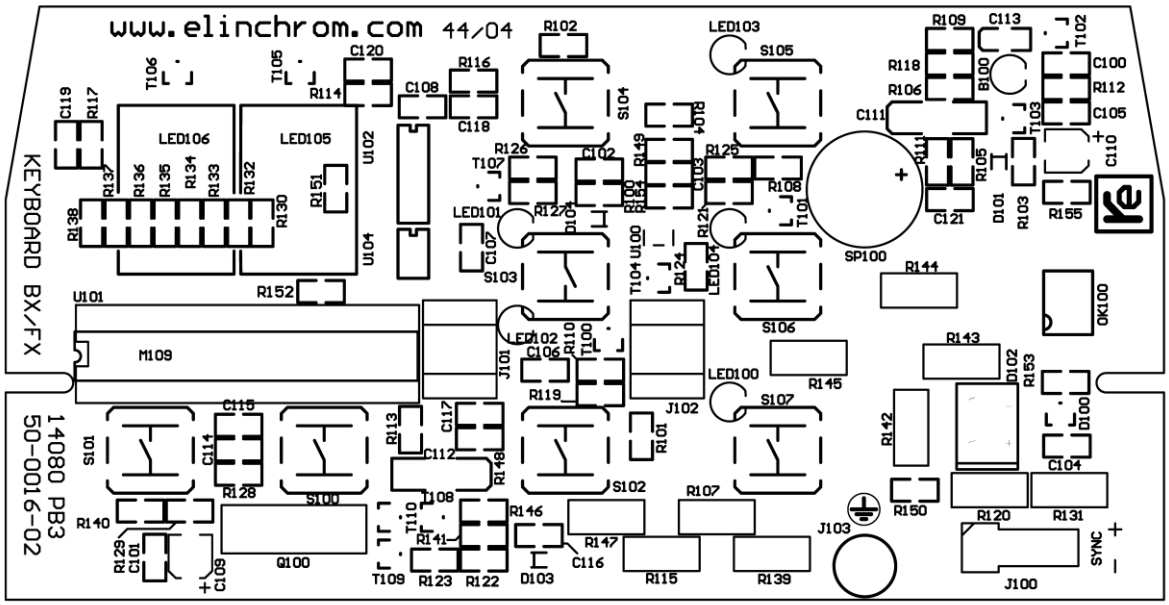
Assembling drawings

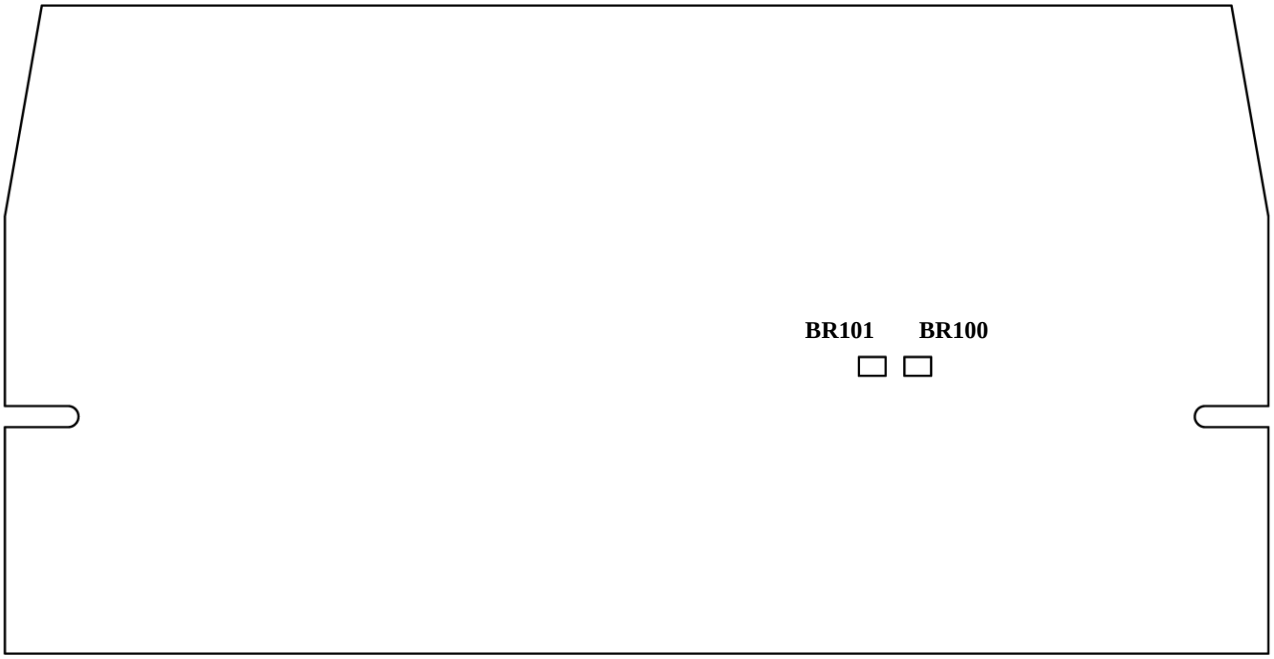
Version 50.0016.01

Note !
The electronic board is part of Exchange Service



Version 50.0016.02





Key board configuration

The unit configuration is up of the solder bridge BR100.
The solder bridge is on the bottom (solder) side of the Key board.

Type	Solder bridge BR100	Power display range	Solder bridge BR101
Style 100 FX	Closed	0.1 – 4.0	Open
Style 100 BX	Closed	0.1 – 4.0	Open
Style 400 FX	Open	2.0 – 6,0	Open
Style 400 BX	Open	2.0 – 6,0	Open

Check flash power display range

NOTE:

Version 50.0016.01 can replaced by the newer version 50.0016.02 and
Version 50.0016.02 can replaced by version 50.0016.01!

NOTES