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**SINGLE SIDED EXPOSURE UNIT
4 TUBES, WITH PRESSURE - MI 10-16
(Item Code BC4)**

INSTRUCTION MANUAL



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**CE Declaration of Conformity**

Us,

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(GB) We certify under our responsibility that the product:

EXPOSURE UNIT
Code : BC4

conforms to European Economic Community standards :

- EN-60204-1
- EN 292

(F) Déclaration du constructeur

La société CIF– 78530 BUC, France, certifie que le produit répond bien aux directives de la Communauté Economique Européenne.

(GB) Manufacturer declaration :

CIF company CIF– 78530 BUC, France, herewith declare that this product conforms to E.E.C. regulations.

(E) Declaracion del constructor

La sociedad CIF– 78530 BUC, France, certifica que este producto satisface las directivas de la comunidad Europea.

(I) Dichiarazione del costruttore

La società CIF– 78530 BUC, France, attesta che il prodotto risponde alle direttive della Unione Europea.

(D) Herstellererklärung

Hiermit erklärt die Firma CIF–78530 BUC, France dass dieses produkt der Richtlinie EWG entspricht.

♦ In accordance with the following European Decrees :

- Low Voltage Directive 2006/42/EC
- Machinery Directive 2006/95/EC
- EMC Directive 2004/108/EC

Buc, June 2012

Authorised signature
Philippe ALBRIEUX

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1 Presentation



Single sided exposure unit CIF BC4

1.1 Characteristics

Working area:	254 X 405 mm
Weight:	9,5 KGS
Dimensions Lxlxh :	625 x 305 x 104 mm
Equipment :	4 tubes of 15 W
Power:	60 Watts
Electrical supply:	220/240 V- 50/60 Hz
Item Code:	BC4

Electrical supply: 220/240 V – 50/60 Hz on differential circuit-breaker 30mA 10A
Sound level < 70 dB

Steady working job.

2 First start up

Alimentation power 220V - 50Hz - 60W.

Connect your machine on a plug 2 Plugs + ground protected 16A maximum with differential circuit-breaker 30mA.

Put your single or double sided board with its well located film(s).

Close the metallic cover.

Set the timer on the requested exposure time.

example: for a presensitised positive CIF board with a transparent film, exposure time is about 90 seconds.

Take into account that a vegetal tracing paper absorbs up to 30 % of UVs.

Exposure begins only when the cover is closed (safety).

UV tubes light when you set exposure time. Once exposure is finished, tubes switch off.

2.1 GUARANTEE

According to our general terms of sales, our machines are guaranteed one year, return to our factory with a guarantee note or a justification of the buying date.

3 Using advice

3.1 Exposure



BC4

- Get off the black adhesive protection of your presensitised CIF board (please refer to our catalogue / website www.cif.fr or ask your reseller).
- Put the original film or drawing on the photo layer (be careful to the direction components or strips).
- Put the whole (film + board) on your exposure unit. Expose your board from 2 to 2,30 minutes if you are using a film, from 2,30 to 4 minutes if you are using a vegetal tracing paper.

3.2 Development



Prepare the developer in a plastic tray. Put the bag C.I.F ref AR 45. in the tray and add 1 litre of water at 20° C. Wait for the complete dissolution. Immediately after exposure, put your board into the developer and mix.

All the exposed photosensitive resin should disappear within 2 minutes without rubbing. If the development is not complete, please refer to the table at the end of this manual. If you do not etch immediately your board, rinse it with plenty of water.

3.3 Etching

In order not to lose time, heat the etching machine before expose your circuit.

Put your circuit in the etching tank.

The etching agent attacks the copper, not protected by the resin.

Etching time (with new ferric chloride): from 45" to 2' in a spraying machine, from 5' to 8' in a foam machine, from 15' to 20' in a tray.

If etching time doubles, change the Ferric Chloride.

Rinse.

3.4 Resin elimination

With our **positive stripper ref AR 61/62/63**. Resin can be let during drilling to protect the copper.

You can expose again the etched board and get off the resin with UVs; Put again the board into the developer. Your circuit is finished.

4 Table of problems and solutions

PROBLEMS	CAUSES	SOLUTIONS
Development is not correctly working.	Too short exposure time. Too old board (forget to take the Black adhesive) Mini. temperature 18° C. Too low development temperature Saturated developer	Make tests with a grey scale (film test C.I.F.) and a new developer
Circuit cut during development or blur development.	Bad contact of the original on the board. Too thick Mylar. Drawing density not black enough Cut on the drawing	Better the press or verify the machine. Make a contact film (reprophane film C.I.F.). Control with lighting table.
Copper with many holes after etching.	Over-insulated board. Drawing not opaque enough. Bad contact. Too long etching time	Verify the original and make tests with grey scale (film test C. I.F.).
No etching.	Resin remains on the board Saturated etching agent.	Increase exposure time and development time. Change the etching agent.
Reduced thin pads after etching	U.V. go on the original. Under-etching phenomenon. Too thick Mylar.	Better the contact. Better the etching system. Make a contact film. Reverse the transfers.

Acceptable intensity (1^A) in a conductor

Extract from « preparation of a PCB » from Mecanorma

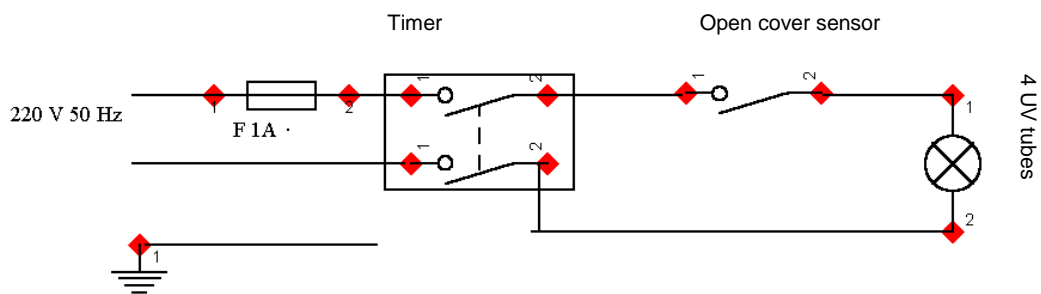
	Conductor width in mm										
	0,36	1	0,4	0,72	1,14	1,78	2,5	3,5	4,5	5,8	7.1
Cu 35 μ	0,36	1	0,4	0,72	1,14	1,78	2,5	3,5	4,5	5,8	7.1
Cu 70 μ				0,36	0,6	0,9	1,3	1,75	2,3	2,9	3,5
$\Delta T^\circ \rightarrow 10^\circ C$	0,9	1	1,8	2,7	3,7	4,7	5,7	7	7	9,1	
$\Delta T^\circ \rightarrow 20^\circ C$	1,2	1,3	2,7	3,8	5,2	6,8	8,3	9,7	11,2	13	
$\Delta T^\circ \rightarrow 30^\circ C$	1,8	1,9	3,5	4,6	6,2	8,2	10,5	12	14	16,1	

5 Appendix

5.1 Nomenclature

QTy	DESCRIPTION	REFERENCES
1	glass 254 x 405 mm	DCP1
4	Tube 15 W 43 cm	AR48
2	Ballast 15 / 20 W	AR50
8	Socket for tube 15 / 20 W	AR51
4	Starter	AR52
4	Starter holder	AR57
1	Timer 0 to 7 mn	AR53

5.2 Scheme





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