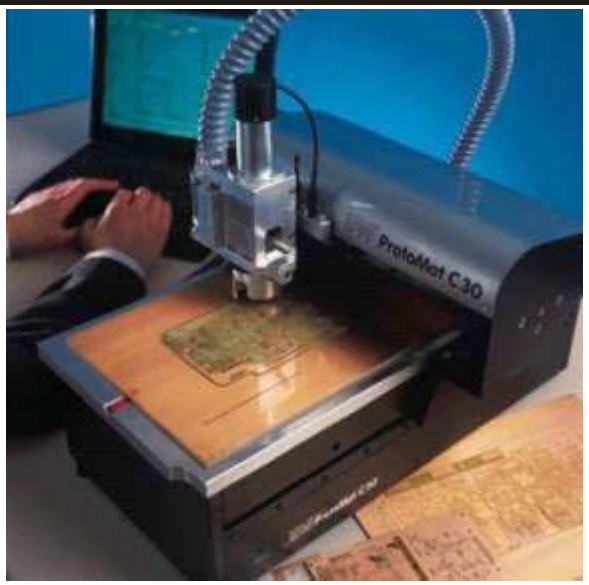
Wilsonville, OR January 2001



Dear Valued Customer,

After the conclusion of another record year I would like to take this opportunity and welcome all new North American customers to our worldwide community of over 9500 LPKF users. I also would like to introduce two new staff member in our Tech Support group: Craig Kniskern ckniskern@lpkfcadcam.com and Jeffrey Bengtson jbengtson@lpkfcadcam.com. Both gentlemen will be available to answer your questions on your LPKF equipment. If you want to talk to us in person you are invited to visit us at many different trade shows throughout North America. Please check the trade show calendar on our web site for details.

Sincerely
Stephan H. Schmidt
General Manager North America

New Bench Top Reflow Oven

LPKF is introducing a new product to close a significant gap in the prototyping of SMT boards. Our microprocessor controlled bench top reflow oven, the LPKF ZelFlow RO4, provides a large working area (11“ x 14”) at a small footprint (19.7” x 14.6”). The user interface is extremely easy to use and lets you set up and select different time and temperature profiles instantly. The ZelFlow RO4 provides convection hot air to maintain the temperature and quartz heating elements to reach the next temperature stage quickly. It also cools off the board automatically. In addition to that the RO4 offers a broad range of different applications such as curing adhesives and conductive pastes and solder mask lamination (with LPKF EasySolder®). Even long term treatments up tp 24 hours (e.g. for component stabilization) are possible.

Part # 010013 US$ 3,280

Rapid PCB Prototyping *Newsletter*

LPKF® Laser & Electronics

New in stock: Metal Free PCB Cleaning Pads

LPKF now provides metal free PCB cleaning pads for deburring and a great board finish. These pads are made out of polymer material and feature a very fine grid. They can be used in both wet and dry conditions and are superior to steel wool and sand paper. Our PCB pads allow very gentle cleaning of the copper and remove any oxidation without damaging the surface.

Polymer PCB cleaning pads are available in packs of 10 pieces.

Part # 07448 US$10

LPKF CircuitView - Camera Option for ProtoMat® Circuit Board Plotter

A newly available accessory for ProtoMat® systems is the LPKF CircuitView camera option. This very convenient alignment and registration device can be used in a number of different applications such as:

- Drilling of etched boards
- Coding of pre-manufactured boards
- Removing of plating conductors
- Reworking of milled or etched PCBs
- Precise and easy front to back registration

CircuitView comes with CCD camera, frame grabber card, all mounting parts and LPKF QuickView Software which is visible at all times when using BoardMaster. The software supports different box shapes or cross hair targets.

It can be retrofited to all ProtoMat® 95s, 95s-II, 93s, 91s/VS, 91s/HS, C30 and C60 models. It also fit 91s and 92s model year 97 and newer

CircuitView for all ProtoMat® except 95s an 95s-II
Part# 106345 US$ 2,400

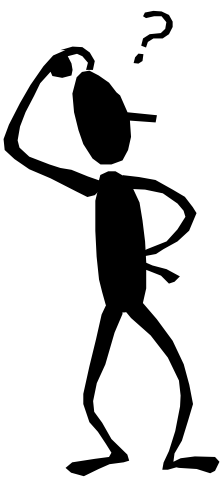
CircuitView for ProtoMat®95s an ProtoMat®95s-II
Part# 107168 US$ 2,400

Circuit View registration camera mounted on ProtoMat® system

Group Training Classes

LPKF again offers inexpensive group training classes at its North American Sales & Service facility in Wilsonville, Oregon (near Portland). These full day classes can be individually booked and are ideal to re-train users or train new staff members on your LPKF equipment. Students will learn advanced software handling to streamline the prototyping process and many tips & tricks on using the circuit board plotter hardware. Our small classes also address individual requirements and LPKF provides computers workstations and a sophisticated training documentation for each student.

	Refresher Course	Advanced User Course	RF & MW User Course
Requirement	Some experience with CircuitCAM and plotter. Maybe student had a private training several years ago. Also appropriate to introduce new staff to LPKF equipment.	Experienced user who creates regular double sided boards or users recently attended the refresher course and want to learn extra functions to become more efficient.	User involved in RF/Microwave design (also DXF data) on special substrates such as Taconic, Rogers, GIL, etc.
Contents	File Management, Gerber and NC Drill files, CircuitCAM, some machine operation and tool info. Discussions with Q&A.	Import assignment setup, insulation strategies, design manipulation, machine configuration and tool management.	How to operate with DXF files, properties of RF materials and required tools, RF Insulation strategies and material handling.
Date	Wednesday, Feb 28th, 2001	Thursday, Mar 1st, 2001	Friday, Mar 2nd, 2001
Cost	US$500	US$500	US$500



Tech Support Guide

To guarantee maximum customer satisfaction we would like to recommend the following guide to assist you if you have questions or are in need of support. Visit our web site at www.lpkfcadcam.com

- Click on the support icon
  username: lpkf
  password: lpkfweb
- Click on Rapid PCB Prototyping
- Here you will find FAQ's, software downloads, manuals and patches.

**Due to the secure nature of our support web site, we ask you to handle the customer access password as confidential.*

Support area welcome screen

If you can't find the answer to your questions at the web site above, please use the support inquiry form in the support section of our web site or email LPKF Laser & Electronics North America at support@lpkfcadcam.com.

Please include the following information in your email:
- Machine's serial number (located on the table top)
- The versions of CircuitCAM and BoardMaster software you are using (i.e. CircuitCAM version 3.2 (258))
- Your question

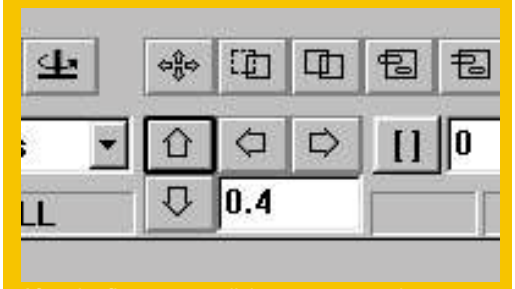
This procedure will guarantee maximum accuracy at minimal response time to answer your individual question

www.lpkfcadcam.com
support@lpkfcadcam.com
(503) 454-4229 M-F 8-5 (PST)

FAQ

Q *How can I move around the head of my machine quickly for positioning purposes and without the mouse?*

A BoardMaster support a very fast, easy to use Move function that supports the keyboard strokes. First you make sure that the *Increment Field* in the middle of the tool bar contains the proper distance you want to move with each mouse-click/keystroke. Then you click with your mouse on the arrow of the direction where you want to move first and the head of the plotter move the desired increment. From now on the arrow keys on your keyboard allow you to move the head further incremental steps in every direction. You can also increase/decrease the increment size with the + and - keys.



After the first mouse-click you may use the arrow keys to move and the + and - key to change the increment.

FAQ

Q What is the best way to handle the board contour that is part of my Gerber Artwork?

A There are actually two ways to handle the board contour.

- One way to select the board outline that is usually on you TopLayer and/or BottomLayer and move it to the BoardOutline layer. This is a marking layer that won't be insulated meaning the circuit board plotter will engrave a thin line that defines the boundary of the board. This line is useful when you're planning on cutting the board with a shear.
- Another method is to select the board outline and generate a contour routing by clicking this function in the tool bar. In this case CircuitCAM generates a milling channel to literally cut out the board from the residual material. If you choose this method you might want to generate some break-out tabs that avoid the board getting loose at the end of the milling process. To do this you can select the contour routing, "walk" with the + and - key to the desired position and then click the break-out tab button which is next to the contour routing generator.

Quantity Discounts on Tools and Material

Covered Products
Now you can take advantage of better pricing for tools and materials if you order larger quantities. The quantity discount can be applied to carbide milling and drilling tools as well as on copper board and backing material. All other products are not eligible for quantity discounts.

Conditions
Each package of tools or materials contains 10 (ten) pieces. Split shipments are not possible except when the desired merchandise is on back order.

Carbide Milling and Drilling Tools
- Receive 10% off when purchasing any combination of drill bits, contour routers, endmills, universal or fine line milling tools. Minimum 20 packages (each package contains 10 bits).
- Receive 15% off when purchasing any combination of drill bits, contour routers, endmills, universal or fine line milling tools. Minimum 50 packages (each package contains 10 bits).

Copper Board and Backing Material
- Receive 10% off when purchasing a minimum of 10 packages of the same type of copper board or backing material (each package contains 10 sheets).
- Receive 15% off when purchasing a minimum of 25 packages of the same type of copper board or backing material (each package contains 10 sheets).

These quantity discounts are valid from Jan 1st 2001. All former discount policies on carbide tools and copper board and backing material are not longer valid from this date. All supplies can be ordered and shipped either inexpensively on a daily basis by UPS Ground or overnight on your UPS or FedEx account.

LPKF Laser & Electronics
North American Headquarters
28220 SW Boberg Rd.
Wilsonville, OR 97070

Tel: 1-503-454-4200 main
Fax: 1-503-682-7151

www.lpkfcadcam.com
info@lpkfcadcam.com

Tech Support Group:
1-503-454-4229
support@lpkfcadcam.com

System Sales:
1-503-454-4219
or toll free 1-800-345-LPKF
sales@lpkfcadcam.com

Tool & Material Sales:
1-503-454-4242
or toll free 1-800-345-LPKF
tools@lpkfcadcam.com