



For Customer Use:
 Enter below the Serial No. which is located on the body.
 Retain this information for future reference.
 Model No: _____
 Serial No: _____

TM-B6040U 微型USB工业相机

These instructions are for suffix U, E models of the video cameras with Y/C output

IMPORTANT SAFEGUARDS

1. Read all of these instructions.
2. Save these instructions for later use.
3. All warnings on the product and in the operating instructions should be adhered to.
4. Unplug this appliance system from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use attachments not recommended by the appliance manufacturer as they may cause hazards.
6. Do not use this appliance near water—for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
7. Do not place this appliance on an unstable cart, stand, or table. The appliance may fall, causing serious injury to a child or adult, and serious damage to the appliance may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart or stand recommended by the manufacturer, or sold with the appliance. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
8. Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to insure reliable operation of the appliance and to protect it from overheating, these openings must not be blocked or covered. The openings should be blocked by placing the appliance on a bed, sofa, rug, or other similar surface. This appliance should never be placed near or over a radiator or heat register. This appliance should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.
9. This appliance should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company. For appliance designed to operate from battery power, refer to the operating instructions.
10. This appliance system is equipped with a 3-wire grounding type plug (a plug having a third (grounding) pin). This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding plug.
11. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
12. Do not allow anything to rest on the power cord. Do not locate this appliance where the cord will be abused by persons walking on it.
13. Follow all warnings and instructions marked on the appliance.
14. Do not overload wall outlets and extension cords as this can result in fire or electric shock.
15. Never push objects of any kind into the appliance through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the appliance.
16. Do not attempt to service this appliance yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
17. Unplug the appliance from the wall outlet and refer servicing to qualified service personnel under following conditions:
 - a. When the power cord or plug is damaged or frayed.
 - b. If liquid has been spilled into the appliance.
 - c. If the appliance has been exposed to rain or water.
 - d. If the appliance does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the appliance to normal operation.
 - e. If the appliance has been dropped or the cabinet has been damaged.
 - f. When the appliance exhibits a distinct change in performance—this indicates a need for service.
18. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
19. Upon completion of any service or repairs to this appliance, ask the service technician to perform routine safety checks to determine that the appliance is in safe operating condition.

PORTABLE CART WARNING
 (Symbol provided by RETAC)



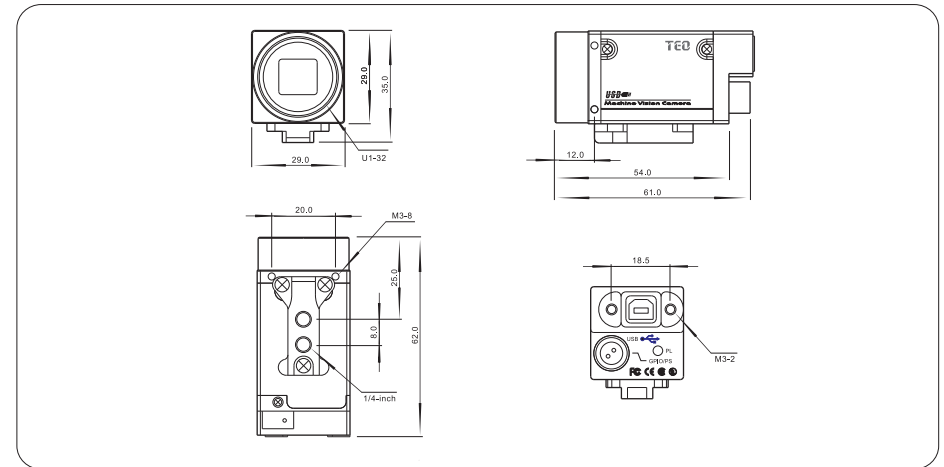
S3126A

感谢您使用TEO品牌产品，在使用前仔细阅读本说明书，并填写、保存好保修单。

提示：本软件只在软件启动时扫描一遍计算机挂载的相应设备，即不支持在软件开启期间插拔设备动态的更新设备列表，如果进行了摄像头设备的插拔请重启软件来更新设备列表。

Dimensions 尺寸

Unit:mm 毫米



SPECIFICATIONS 技术指标:

Model 型号	TM-B6040U
Sensor 图像传感器	Diagonal 5.35mm, 1/3-inch MiCMOS 4.51mm(H) x 2.88mm(V)
Effective pixels 有效像素	752(H) x 480(V)
Pixel size 像素尺寸	6.0 μm(H) × 6.0 μm(V)
Frame rate 帧率	50fps; max: 60fps at full resolution
Exposal mode 曝光方式	Progressive
Signal process 信号处理	12-bit TEO-MI Pro ™ process
Image data output 图像数据输出	8, 12, 16, and 24-bit digital data
S/N ratio 信噪比	50dB
Dynamic range 动态范围	> 72.0dB
Sensitivity 灵敏度	4.1 V/lux-sec (550nm)
Gain control 增益控制	Automatic/manual/one-push modes, programmable via software -2.6dB to 24dB in 0.04dB increments
Shutter speed 快门速度	Automatic/manual/one-push modes, programmable via software 0.03ms to 32s
Image output 图像输出	USB 2.0 out, 480Mb/s
Programmable control 可编程控制	Image size, contrast, brightness, gain, exposure time
Software function 软件功能	Image display, image processing, video
General purpose I/O ports	2-pin GPIO connector for power, trigger, strobe, PWM, and serial I/O
I/O 端口	1 opto-isolated input, 1 opto-isolated output, 2 bi-directional I/O pins
Software support 软件支持	Measurement software, SDK, OCX, control-file; support DSHOW, labview, TWAIN port
Operation software 操作平台	VISTA, WIN7, WIN XP; WIN2000 Full support for 32-bit, 64-bit operating system
Lens mount 镜头安装方式	C mount
Power consumption 电源功耗	Approx 2.3W ; USB2.0 supply +5.0VDC+10%
Operating temperature 工作温度	-10°C to +50°C; 0°C to +40°C (recommended 推荐)
Dimension 尺寸	29.0(L) × 29.0(W) × 61.0 (H) mm
Weight 重量	approx 85g

Design and specifications subject to change without notice.
 产品设计和技术指标若有变动恕不另行通知。

For USA and CANADA

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

The lightning flash with arrowhead symbol, within an equi-lateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

感谢您惠购 **TEO** 工业相机，为了便于获得最佳的使用效果，使用之前请仔细阅读本说明书，并妥善保存以备将来查阅。

警告： 为了防止火灾或免遭电击，请不要将本机暴露在雨中或放置在潮湿的地方。

在有很强的电磁波或强磁场的地方，例如，在收音机、电视发射机、变压器或马达附近，画面上可能会出现许多噪波。

产品特点：

高清晰，高信噪比，图像更细腻；*Digital Clarity™* 清晰化处理技术，图像更通透；可在程序界面调整曝光、对比度、增益、清晰度；USB2.0图像接口，无需板卡方便连接计算机即可实现查看；USB直流供电，无需另外供电。采用36万像素COMS图像传感器，可用于拍摄黑白图像，帧速最大达到60fps。成为传统机器视觉的理想选择。大小为29x29x61小巧的尺寸顺应了客户的需求。

软件安装：

首先要根据系统是32位还是64位选择合适的SDK安装版本，在程序开始安装时会自动检测系统是否安装RZUSB.inf补丁进行安装，完成之后再按装TM-B6000U图像测量应用平台.exe,安装过程中的其它并无特殊设置的地方，按其默认设置安装即可。

功能说明：

视频菜单及视频工具栏

视频菜单提供了摄像头视频处理的控制功能，为了使用方便在视频工具栏也相应的添加了一些控制摄像头状态的按钮。其中包括：

说明：预览功能除外的其他功能按钮只有在开启视频预览可使用。

预览与停止

预览功能为打开当前摄像头设备在视频区域显示预览视频。

停止功能则对应关闭摄像头的显示。

说明：更换设备可以通过“综合窗口”中的“设备列表”页，通过双击软件中枚举出的设备名称来更换。

录像与停止录像

录像功能为录制当前摄像头捕捉到的视频到AVI文件，录像功能在开启视频预览或者未开启视频预览时均可使用。

停止录像功能则对应停止视频文件的录制。

说明：在软件初始安装后，录制的视频将存放在软件安装目录下的“Video Capture”文件夹，可以通过“设置”中的“视频保存目录设置”功能更改录像的保存路径，保存的文件应用时间命名，文件格式为AVI。


截图


截图功能是将当前摄像头采集到的一幅视频画面保存到图片文件，并在缩略图列表中加载缩略图。

说明：在软件初始安装后，截图将保存在软件安装目录下的“Photos”文件夹，可以通过“设置”中的“图片工作目录设置”功能更改录像的保存路径。保存文件格式可以分为jpg或bmp两种，通过“设置”中的“截图设置”来更改截图类型，保存的截图应用时间命名。

定时截图

定时截图功能是将摄像头采集到的视频画面按照指定的时间间隔保存到图片文件中。该按钮在视频预览开启后才可使用。选中后将以高

亮显示  表示该功能已经开启，通过再次点击该功能按钮关闭定时截图。该功能将依照“截图时间间隔”中设定的时间间隔来定时截图保存到文件夹中，并在缩略图列表中加载缩略图。

说明：通过视频工具栏中的  (截图时间间隔下拉列表来进行设置，单位为“s”)，列表中预设了1s、2s、4s、8s四个时间间隔，还可以通过数字键盘来输入合适的时间间隔。

黑白视频

黑白视频功能是将摄像头采集到的数据进行黑白效果的显示，通过点击该功能按钮来开启视频的黑白显示，通过再次点击该功能按钮关闭黑白视频显示。

自动曝光

自动曝光功能是摄像头根据当前的环境进行自动调整至合适的曝光值。

说明：自动曝光时，在视频预览界面的右上角将会显示一不断变化的方形色块，在色块消失后表示自动曝光结束。在自动曝光期间不要打开视频参数设置对话框进行参数的调整。

自动白平衡

自动白平衡功能是摄像头根据当前视频数据的RGB值及曝光值，将RGB及曝光值调整至合适的状态。

说明：自动白平衡时，在视频预览界面的右上角将会显示一不断变化的方形色块，在色块消失后表示自动白平衡结束。本功能对黑白相机没有效果。

在自动白平衡期间请不要打开视频参数设置对话框进行参数的调整。(注此黑白相机无需自动白平衡)

参数设置

参数设置功能是打开摄像头参数设置窗口来设置摄像头的曝光值、RGB值等一系列控制摄像头的参数。

说明：由于不同类型的摄像头所需要的参数设置不同，摄像头参数设置界面也不尽相同，但是每一种类型的界面都会包含摄像头所需的全部参数的控制。

曝光：为相机的曝光时间，直接影响到相机行的亮度，同时也会对帧率有一定的影响，在一些对相机拍摄速度有很高要求的项目，不建议将此值设的太大。

增益：为相机的增益，一般在图像亮度不够的情况下加增益值，但是会带来一定的噪声，图像信噪比会下降。不推荐增加增益值，尽量增加光源亮度和曝光值去改善图像的亮度。

十字线

十字线功能是在当前的视频预览中添加红色的十字线标识。

全屏

全屏功能是将摄像头视频显示功能全屏幕填充显示。

在全屏幕显示时按“ESC”键退出全屏幕显示，按“H”键显示全屏幕的快捷键提示窗口。

说明：在开启动态测量后该功能将不可用。

色调/饱和度

色调/饱和度功能针对当前显示的图片进行参数的调节，在点击该按钮后会弹出“图像参数调节”对话框，并将当前图片的缩略图显示在对话框的右侧。

当对话框中“预览”按钮选中时调节参数时，右侧的缩略图会实时的显示图片在调节后的效果。

RGB调节

RGB调节功能针对当前显示的图片进行RGB参数的调节，在点击该按钮后会弹出“RGB调节”对话框，并将当前图片的缩略图显示在对话框的右侧。

当对话框中“预览”按钮选中时调节参数时，右侧的缩略图会实时的显示图片在调节后的效果。

打开

打开功能用于加载图片，加载的图片将会以缩略图的形式显示在窗口左侧的区域。

保存

保存功能用于将融合完成的结果保存到指定的路径位置。

删除

删除功能是将当前加载并选中的文件在缩略图中删除，用以调整加载的文件。

备注：详细说明书请查阅光盘电子使用说明书。



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