

EZ-STROBE

8-Channel Strobe Sequencer User's Manual

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Read Manual Before Installation or Maintenance

Read all warnings, this entire manual, and its [attachments](#), including all electrical drawings before installing, servicing, or operating this device.

Failure to follow warnings and instructions may result in serious injury or death!



If you're online, use [Adobe Acrobat](#) to open the [PDF version of this manual](#) and to open this manual's [attachments](#).

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corrections to support@birket.com

Warnings



Read Manual Before Installation or Maintenance

Read all warnings, this entire manual, and its [attachments](#), including all electrical drawings before installing, servicing, or operating this device.

Failure to follow warnings and instructions may result in serious injury or death!

There are [connection instructions](#) among the [attachments](#) for connectors that require special termination techniques. Please review these documents before installation.

There are detailed system drawings among the [attachments](#). Please review these drawings before installation.



Warning – Electrical Shock Hazard

The **EZ-STROBE** system generates and **stores** high DC voltages during its normal operation. **Hazardous voltages will be present for many minutes after you disconnect power.** You must disconnect all power and **WAIT TEN (10) MINUTES** before working on any part of the strobe system.



Disconnect power before installation or maintenance. Provide a power disconnect switch or outlet nearby to safely disconnect AC power before working on this equipment.

There are high voltages inside the sequencer while the system is operating.



Warning – Epileptic Seizures

Lighting effects that pulse over a wide field of vision at 10 to 50 Hertz are known to cause epileptic seizures in approximately one in 4000 people. Lighting designers, owners, and operators must avoid creating such effects.

See: [Photosensitive Epilepsy](#) among the attachments.



Qualified Electrician Required

This system should be installed by a qualified electrician in compliance with the authority having jurisdiction. Use of improper wiring is illegal, dangerous, and will void the warranty.



Use the Correct Strobe Wiring Polarity

Observe [proper wire polarity](#) when connecting the strobe lamps or irreversible damage to the strobe lamp will occur. Reversing the PWR and GND strobe wires will not cause an obvious problem, but it will greatly degrade the lamp's useful life and void the warranty.



Do Not Substitute Another Cable Type

Do not substitute another strobe lamp cable type. Use the provided or approved cable type. Use of improper wiring is illegal, dangerous, and will void the warranty. Consult with Birket Engineering, Inc. if your installation requires a cable other than those provided or approved.



Do not Attempt to Repair the Sequencer

There are no user serviceable parts inside the sequencer. Any attempt to repair or otherwise alter the sequencer may be hazardous to you or others, will probably damage the sequencer, and will definitely void the warranty.

If you think that a PC Board may require service, please [contact Birket Engineering, Inc.](#) or your distributor.



Strobes Generate Heat

Strobe heat must be allowed to dissipate into the ambient air. Do not allow strobes to touch one another while blinking or damage will occur.

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	Lamp drawings	Normal and Quick-Disconnect Lamps
	Photosensitive Epilepsy	Discussion of flashing lights and epilepsy

Introduction

The **EZ-STROBE** is an eight-channel strobe controller capable of sequencing strobes in a predefined manner based on user input. In addition, the sequencer may be daisy-chained in order to add additional strobes for large lighting effects. The overall rate of the system may be adjusted to change the speed at which the sequences trigger.

The **EZ** gives you the features you want at an affordable price. Designed and assembled with the quality and professional practice expected from Birket Engineering, the system is perfect for applications where the individual strobe control offered by DMX is not desired.

Typical applications include dark rides, stage shows, animation, themed environments, retail displays, casinos, entertainment architecture, indoor & outdoor roller coasters, signage, chase lights, and billboards.

Cue the **EZ** remotely at your next live event or set it for hands-off continuous use at your club or attraction. Compare and find no other strobe sequencer offers the versatility, durability, and impact of the **EZ**. Daisy chain 8 **EZ**s together and sequence 64 strobes at one command. Compact strobes and configurability make this the best choice for simple, super-attention getting at your venue. Colored lenses, mounting brackets, and custom cable lengths are available for the **EZ**.

Features

- Standard 120VAC operation.
 - 5 million flash-life strobes.
 - Surface or rack-mount.
 - No DMX source required.
 - 8 connectorized cables and strobes ready for outdoor use.
 - 200' length cable runs available.
 - Combine four remote-input or hardwire selectable sequences for your shows:
 - Zip Up
 - Zip Down
 - All Flash
 - Random Flash
 - Adjustable rate flash.
 - Daisy chain up to 7 additional **EZ-STROBE** sequencers.
-

Description

Each sequencer consists of the following:

- Strobe sequencer enclosure with on/off switch, 'on' indicator, remote operator console port (console sold separately), daisy-chain link RJ11 ports, local control and remote cueing inputs, rate adjustment knob, terminals for eight strobe connectors, and power cord with an Edison-style power plug.
- Eight strobe lamps with 25' cables and connectors (additional cable length available).



Figure 1: **EZ-STROBE SEQUENCER**

Mechanical Specifications

Table 1 - Sequencer's Mechanical Specifications

Sequencer Dimensions	17.0in. x 5.2in. x 1.725in. (431.8mm. x 132.08mm x 43.81mm.)
Bulb Dimensions	0.8 in. diam x 3.339 in. length (20.3 mm. x 84.81mm.)

Electrical Specifications

Table 2 - Sequencer's Electrical Specifications

Power Supply Input	120 VAC, 60 Hz
Power Supply Output	6.3 Volts DC
Sequencer Current	0.4A
Sequencer Power	4.8 W per strobe
Ambient Temp. Range For Sequencer	32°F to 158°F (0°C to 70°C)

Modes of Operation

The **EZ-STROBE** may be set to local control, remote sequence operation or for use by a remote operator console. The **EZ-STROBE** may also be set for multiple Brik operation, controlling up to seven additional BRIKs at once.

Local Control

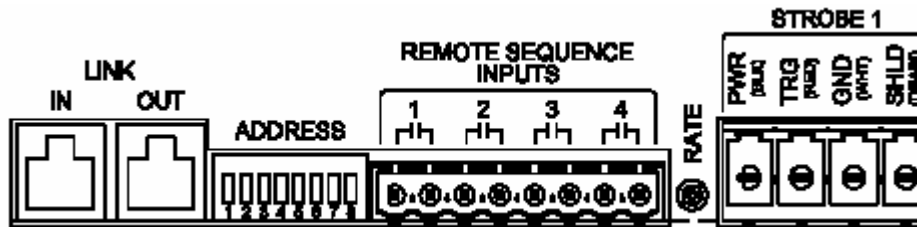


Figure 2- **EZ-STROBE** back panel

A trim pot on the back of the **EZ-STROBE** controls strobe sequence rate. Dipswitches 1 through 4 provide for selection of desired strobe sequences. Any combination may be selected.

- Switch 1 - ZIP UP
- Switch 2 - ZIP DOWN
- Switch 3 - ALL FLASH
- Switch 4 - RANDOM FLASH

Note:

All Dipswitch settings are ignored unless switch 8 is in the ON position. The Remote Inputs and the External Inputs are never ignored regardless of the setting of switch 8.

Remote Sequence Cueing

The **EZ-STROBE** may be cued externally through any relay or manual contact closure. Four pairs of contacts correspond to the four sequences. The selected sequence will loop as long as the contact closure is maintained.

Maintaining more than one closure will cause more than one sequence to loop. For example, if contact sets 1 and 2 are maintained closed, the strobes will Zip Up, then Zip Down, then Zip Up, then Zip Down, until the contacts are released.

Remote Operator Console

The remote operator console consists of four buttons corresponding to the four preprogrammed sequences; zip up, zip down, all blink, and random. Holding down the corresponding button activates a sequence. When the button is released the sequence will stop. Holding down multiple buttons may combine sequences. The console also has a rate control that overrides the pot on the back of the sequencer.

Multiple BRIK operation

Up to 8 **EZ-STROBE**s may be daisy-chained together, all receiving their input from one master sequencer, controlling up to 64 strobes at once. The 'Out' daisy-chaining port of the master **EZ** is connected to the 'In' of the slave **EZ**. Multiple slave **EZ**s are chained together in the same manner. Dipswitches 5-7 tell the master **EZ** sequencer how many slave **EZ**s are in use. Slave dipswitches 5-7 are not used.

Table 3 - Master Board Dipswitch Settings

5	6	7	Number of Remote EZ-STROBE s *
OFF	OFF	OFF	0
ON	OFF	OFF	1
OFF	ON	OFF	2
ON	ON	OFF	3
OFF	OFF	ON	4
ON	OFF	ON	5
OFF	ON	ON	6
ON	ON	ON	7

**This number does not include the master BRIK*

Strobe Cable Termination (at the Strobe Bulb)

If your strobes were not delivered with pre-connected cable or if you need to replace a damaged or exhausted strobe, follow this connection procedure.

The strobe bulbs are provided with insulation displacement connectors. Follow the manufacturer's instructions attached in Appendix A of this manual for proper termination.


Remember

- Make sure all power to the sequencer is disconnected.
- The use of dressing shrink tubing at the end of each cable is not recommended.

Procedure

1. Strip approximately 1" (2 cm) of cable jacket.
2. DO NOT strip the wires prior to termination.
3. Insert each wire in the respective cartridge hole as indicated in the table below. Make sure to avoid crossing the wires since this will make connection more difficult.
4. Using wire cutters trim the excess wire so that each wire is flush with the cartridge.
5. Following the key arrangement on the cartridge insert the cartridge into the connector and apply gentle pressure.
6. Bring the cable gland pieces against the cartridge and tighten by hand.
7. Using two wrenches, tighten the cable gland connector until it stops. Do not over-tighten.

Table 4 - Strobe Cable Wiring

WARNING – INSTALLATION NOTES					
	Follow the proper polarity or damage to strobe bulbs will occur.				
	Cable Type	Wire Color	BRIK Terminal	Lamp 3-Pin	Lamp 4-Pin
		Black – 1	PWR	1	1
	Olflex – 190	Black – 2	TRIG	2	4
		Green / Yellow	GND	3	3
		Black	PWR	1	1
	Belden – 8791	Red	TRIG	2	4
		White	GND	3	3

Strobe Bulb Installation or Replacement

Follow this procedure if a strobe bulb has already been connected to a cable and needs to be replaced because it has failed. Follow the manufacturer's instructions attached in Appendix B of this manual for proper replacement.

1. Using a set of appropriate wrenches, loosen the cable gland connector.
2. Carefully slide the cable gland (3 pieces) away from the strobe bulb.
3. Holding the strobe bulb in one hand and the cable on the other pull them apart.
4. Remove the cartridge from the end of the cable (keep for later use).
5. Cut the cable end to clean the frayed wires and prepare for termination as explained in explained in strobe cable termination.
6. If the new strobe bulb has been supplied with a new cable gland connector, use the new pieces provided. Otherwise the pieces that were removed from the old strobe bulb can be used again.
7. Reconnect the new strobe bulb as explained in strobe cable termination.

Troubleshooting the System

This section describes how to handle simple problems with your system.



Do not Attempt to Repair the Sequencer

There are no user serviceable parts inside the sequencer. Any attempt to repair or otherwise alter the sequencer may be hazardous to you or others, will probably damage the sequencer, and will definitely void the warranty.

If you think that a PC Board may require service, please [contact Birket Engineering, Inc.](#) or your distributor.



Strobes Generate Heat

Strobe heat must be allowed to dissipate into the ambient air. Do not allow strobes to touch one another while blinking or damage will occur.

Why are my strobe lamps not flashing?

- Is the power to the sequencer ON?
- Is the sequencer connected to the correct power? (120 VAC, 60 Hz)
- Dipswitch 8 must be on for local control.

Why is this strobe lamp not flashing?

- Check the strobe lamp by connecting the lamp to a different channel. Replace worn-out lamps and check for proper wiring.
- Check the channel in question by connecting a known-good strobe to it.

Why is this strobe lamp flashing unexpectedly?

- Is the **EZ-STROBE** in random mode?
- Is the sequencer configured in the correct mode?

Why are my strobes not lasting as long as I expected?

Please see About Strobe Lamp Life at the end of this manual for details about the life expectancy of the xenon strobe bulbs.

Strobe life can be affected by a number of factors. Some of the more common are extreme temperature (using strobes outside the recommended temperature range), improper strobe cable termination, or flashing the strobe too fast and too bright for too long without allowing time to cool.

If you find that strobes in a certain area are failing more often than in a different area, you should check that the ambient temperature is within the temperature range for the strobe lamp.

If temperature is not the problem, confirm that the strobe is properly connected to the **EZ-STROBE**. Refer to installation section of this manual for details. Reversing the PWR and GND strobe wires will not cause an immediately detectable fault. However, this condition will greatly degrade the lamp's life.

If you still find that some strobes installed or used in a certain way are failing prematurely, please contact Birket Engineering, Inc. to discuss your application. We may be able to help you, or at least learn from your situation to advise other **EZ-STROBE** owners and improve the product.

Technical Support

We want to deliver the best product we can to you. We appreciate your feedback very much. If you have problems, comments, or suggestions or any other issue with our product, please contact us.

If your **EZ-STROBE** is not working as you expect, we recommend that you review the manual again, including the troubleshooting section above. If you are still experiencing problems with your **EZ-STROBE**, please contact us for technical support at:

On the web at <http://www.birket.com/support>.

By email at support@birket.com

By telephone (407) 290-2000 (in the USA).

Limited Warranty

Strobe Sequencer: Birket Engineering, Inc. will repair or replace your **EZ-STROBE** sequencer free of charge if it fails within two (2) years after shipping.

Strobe Lamp: Birket Engineering, Inc. will repair or replace your strobe lamps free of charge if they fail within sixty (60) days after shipping. See About Strobe Lamp Life.

Shipping: You must send defective devices to us at your expense. Call before shipping to obtain a Returned Goods Authorization. Birket is not responsible for shipping damage due to improper packaging. We will return new or repaired devices to you at our expense (by second-day delivery within the USA).

Limitations: Birket Engineering, Inc. is not liable for device failures that occur due to misuse, abuse, accident, fire, lightning, power surges, connection to improper power sources, operator error, or acts of God. Birket is not liable for any consequential damages of any sort, including loss of revenue due to show down time. In the event of Birket equipment failure for any reason leading to the user's or owner's loss of any nature, the user's or owner's sole remedy is that of equipment repair or replacement, as determined by Birket.

Warranty Registration: Your **EZ-STROBE** system must be registered in order for the warranty to be in effect. Register by faxing the completed Warranty Registration Form (last page) to Birket Engineering, Inc. at (407) 654-2150.

About Strobe Lamp Life

Our strobe lamps are used in a wide variety of ways. The life of our strobe lamp is five million blinks when they are used with our sequencer at rates up to one flash per second, in ambient temperatures up to 90°F (32° C). You may achieve many more than five million blinks without noticeable degradation.

In these conditions, for example:

<u>If your flash rate averages</u>	<u>And you operate</u>	<u>Your lamp should last</u>
2 flashes every minute	4 hours a day, 5 days a week	40 years.
1 flash every 10 seconds	8 hours a day, 7 days a week	4.7 years.
1 flash every second	24 hours a day, 7 days a week	57 days.

High temperatures will reduce the life of the xenon flash tube inside the lamp. High temperatures are the result of the inability to dissipate heat due to:

- High ambient temperature (hot mounting location),
- Restricted air movement near the lamp (confined mounting location),
- High energy delivered to the lamp with each flash (full intensity), and
- Insufficient cooling time between flashes (rapid flashes without rest)

The xenon flash tube inside the lamp is rated at five million flashes at four watts (four joules per second) because when passing energy at this rate it is able to cool enough to remain at a temperature that will not harm the tube. The **EZ-STROBE** Sequencer delivers about 3.7 joules to each strobe lamp with each flash. Rates faster than one flash per second will reduce the lamp's life accordingly.

Although there are calculations that assist with estimating the life of a strobe lamp in a particular application, ultimately any statement of lamp life can only be approximate.

Warranty Registration Form

EZ-STROBE 8-Channel Strobe Sequencer and Strobe Lamps.

Fax completed form to Warranty Registration, Birket Engineering, Inc. at (407) 654-2150.

Lighting Designer or Owner:
Phone:
E-mail:
Installation Name:
Date strobes will be placed into service:

Please complete this section for each group of similarly used strobe lamps. (Copy as required.)

Number of strobes:

Describe the locations where strobes are mounted:

(Indoors vs. outdoors, method of enclosure, etc.)

Ambient temperature where the strobes are mounted:

Maximum:

Typical:

Minimum:

Describe the lighting effect created by the strobes

(chase, patterns, twinkle, etc.):

What is the typical flash rate for individual strobes?

Maximum:

Typical:

Minimum:

Are strobes ever operated faster than one flash per second?

If so, explain the timing and intensity of the effect and the time between such bursts of rapid flashes:

How frequently does the system operate?

Hours per day:

Days per week:

Who can Birket Engineering contact for more information? Phone:

E-mail:

Appendix A: Manufacturer Installation Details

QUICKON-ONE

The new type of QUICKON connection system makes the installation of automation technology not only faster, but also simpler and less expensive. The assembly principle of QUICKON-ONE is extremely easy.

Conductor connection

1. Remove the conductor sheath (approx. 40 mm).
2. Only slide one part onto the conductor – the QUICKON-ONE union nut, as far as it will go.



3. Snap the cores into the marked (1, 2, 3,...) core entry (see fig 1).



4. Cut off the projecting core ends flush, i.e. so that there is no overhang.



5. Push the QUICKON-ONE union nut onto the contact carrier and tighten with the necessary torque (1.2 Nm).



The QUICKON fast connection system automatically creates the electrical contact and strain relief when the union nut is tightened. Special seals protect against dust and water (IP 65/IP 67).

Removing the conductor

1. Open the union nut. The splice ring then comes out of the union nut.



2. The conductor can be pulled out of the terminal block.

Repeated connection of the conductor

When the connection is unscrewed, the splice ring comes out of the union nut. If the conductor is connected again, the splice ring must be screwed approx. two turns into the union nut before the procedure described above (conductor connection) can be followed.

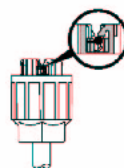


Fig 1

QUICKON components

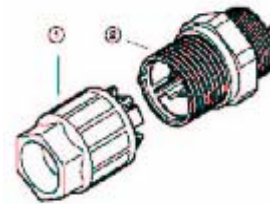


Fig 2

- 1) Union nut assembly (union nut, seal, splice ring with strain relief cap).
- 2) Contact carrier
- 3) Splice ring

Demands on the conductors which can be used

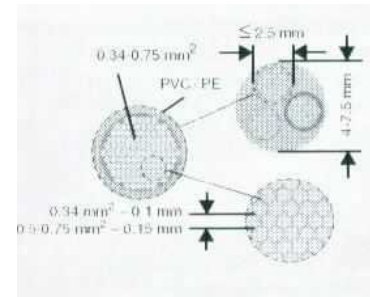


Fig 3

When connecting the conductor, the conditions for the conductor and torques listed in the technical data have to be complied with. Flexible conductors with PVC and PE insulated cores can be used.

Note:

A new connection can be made with the same contact system up to ten times. When connecting the conductor again, you must make sure that the section of core already contacted before is cut off from the conductor. When using a new conductor, the same core cross section must be used. This procedure ensures that a gas-tight contact point is re-established.

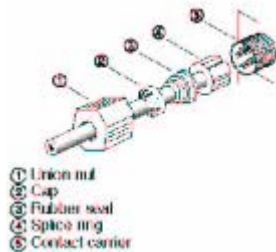
The device may only be **installed and put into operation** by qualified personnel. The corresponding national regulations (e.g. DIN, VDE,...) must be observed. QUICKON components may only be operated when under no load.

Appendix B: Manufacturer Installation Details

Features of QUICKON and QUICKON-ONE

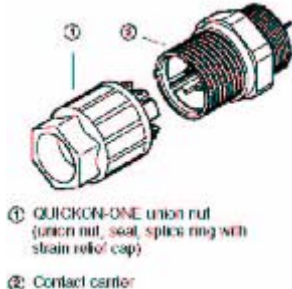
The product QUICKON includes a union nut set consisting of several parts.

QUICKON components



The product QUICKON-ONE has a union nut consisting of just one part.

QUICKON-ONE components



Assembly of the conductor with QUICKON

QUICKON – the new type of connection system makes the installation of e.g. sensors, actuators and other system components in automation technology not only faster, but also simpler and less expensive.

The assembly principle of QUICKON-ONE is extremely simple.



1. Preparation

- Remove the conductor sheath (approx. 15 mm, the core ends must be flush with the splice ring or may overlap by a maximum of 2 mm).
- Slide on the union nut, the cap and the rubber seal (as far as the rim of the insulation).



2. Mounting QUICKON components

- Insert the core ends into the feed-through of the splice ring. To ensure correct assignment, these are numbered.

Cut off the projecting core ends (the core ends may project from the splice ring by a maximum of 2 mm).



3. Tightening

- Insert the prepared conductor into the contact carrier.
- Tighten the union nut.

This fast connection system automatically creates the contact and strain relief when tightened. Special seals protect against dust and splashed water (IP 67).

Removing the conductor

1. Open the gland
2. Remove the conductor
 - The cable can be removed from the terminal point by pulling on the conductor.
 - Surplus insulation must be removed before repeated connection.