Xenon

STROBE-BRIK™

DMX Multi-Strobe System

User's Manual

Model Numbers

BRIK-XEN-8S   BRIK-XEN-8SS
BRIK-XEN-16S   BRIK-XEN-16SS
BRIK-XEN-24S   BRIK-XEN-24SS
BRIK-XEN-32S   BRIK-XEN-32SS

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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!

Revised 2009-05-11   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

330 Volts DC

The **STROBE-BRIK™** 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 controller while the system is operating. Take care not to touch anything inside the controller when opening the lid to view the diagnostic LEDs.

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

Only a qualified electrician in compliance with the authority having jurisdiction should install, configure, use the diagnostics, or troubleshoot this system. Use of improper practice 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 Controller

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

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

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BRIK-XEN-16S drawings	Assembly, Detail, and Schematic
BRIK-XEN-24S drawings	Assembly, Detail, and Schematic
BRIK-XEN-32S drawings	Assembly, Detail, and Schematic
Internals_drawings	Internal Bracket and Harnesses
Lamp_drawings	Normal and Quick-Disconnect Lamps
Photosensitive Epilepsy	Discussion of flashing lights and epilepsy

Introduction

BIRKET Engineering's DMX controlled **STROBE-BRIK**™ multiple strobe light controller is the efficient solution to your multiple-strobe needs. The controller packs the electronics for 8, 16, 24, or 32 strobe lamps into a slim, rugged package that drives many remote strobe lamps. The multi-channel controller saves space, speeds installation, and simplifies maintenance. It's ideal anywhere you want many strobes with minimal effort and expense.

Figure - BRIK-XEN-8S controller (no lamps)
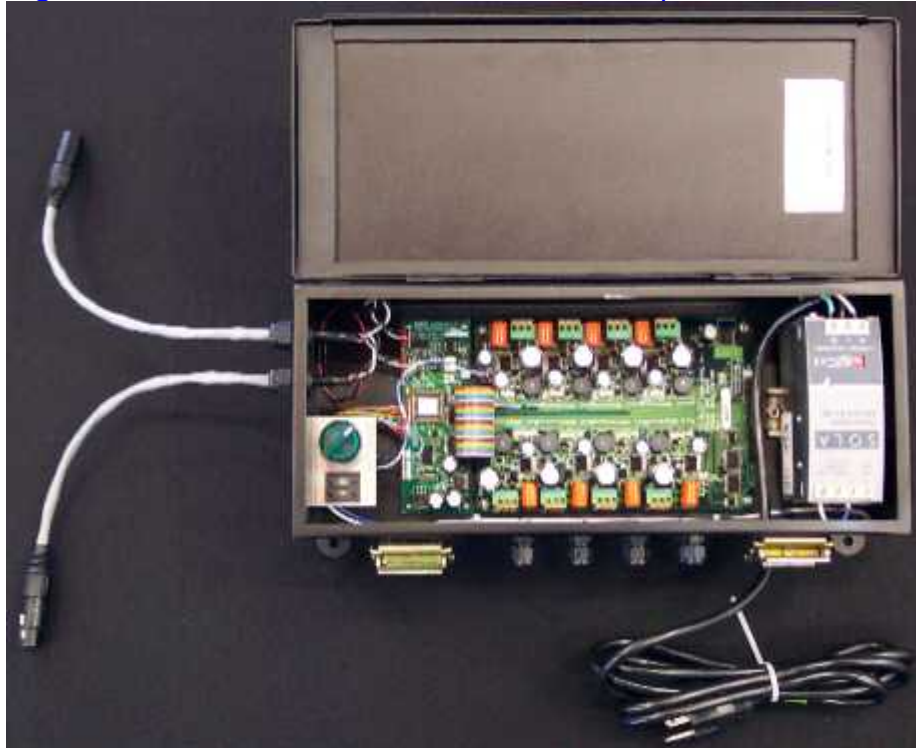
Depending on your **STROBE-BRIK**™ controller model, 8, 16, 24, or 32 strobes can be powered from one box. Up to 128 strobe controllers may be daisy-chained on a single standard DMX cable. You can easily include hundreds, even thousands, of strobe lights in your design.

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

Installation is as easy as connecting the strobe lamps to the **STROBE-BRIK**™ system, connecting DMX data cables, and finally connecting to an AC power line or outlet.

Our standard product provides all the features that are listed below. We invite you to discuss your special requirements with us. Custom requirements including lamp or enclosure colors, special environmental ratings, custom cable lengths, and special connectors are common requests.

Features

DMX-512 controlled or stand-alone operation.

Matched DMX In and Thru XLR connectors simplify hookup.

Easily selectable DMX address.

Efficient ¼ load DMX network card mean that up to 128 controllers may be daisy-chained on one DMX cable (with ideal cabling).

Variable DMX-controlled rate & intensity.

Diagnostic strobe-specific indicators reveal exhausted strobe lamps, ground-faults, or wiring problems.

Universal (115/230 50/60) power supply.

Calibrates itself for your installation (when commanded).

Robust circuitry for safety and reliability.

Remote strobe lamps are UV-resistant and water-resistant.

UL and CE marking available.

Description

Each controller model consists of the following:

Strobe controller enclosure (either powder-coated or stainless-steel type)
Internal "universal" A/C to 24V DC power supply
Internal DMX network interface card
One, two, or four internal 8-channel strobe control cards
Internal power and address switch assembly
Attached power cord with an Edison-style power plug
Attached short DMX "input" cable with a male 5-pin XLR connector
Attached short DMX "thru" cable with a female 5-pin XLR connector
A/C Power Line Filter (not included on USA version)

Includes 8, 16, 24, or 32 strobe lamps, with strobe cable as specified

Figure - Controller components
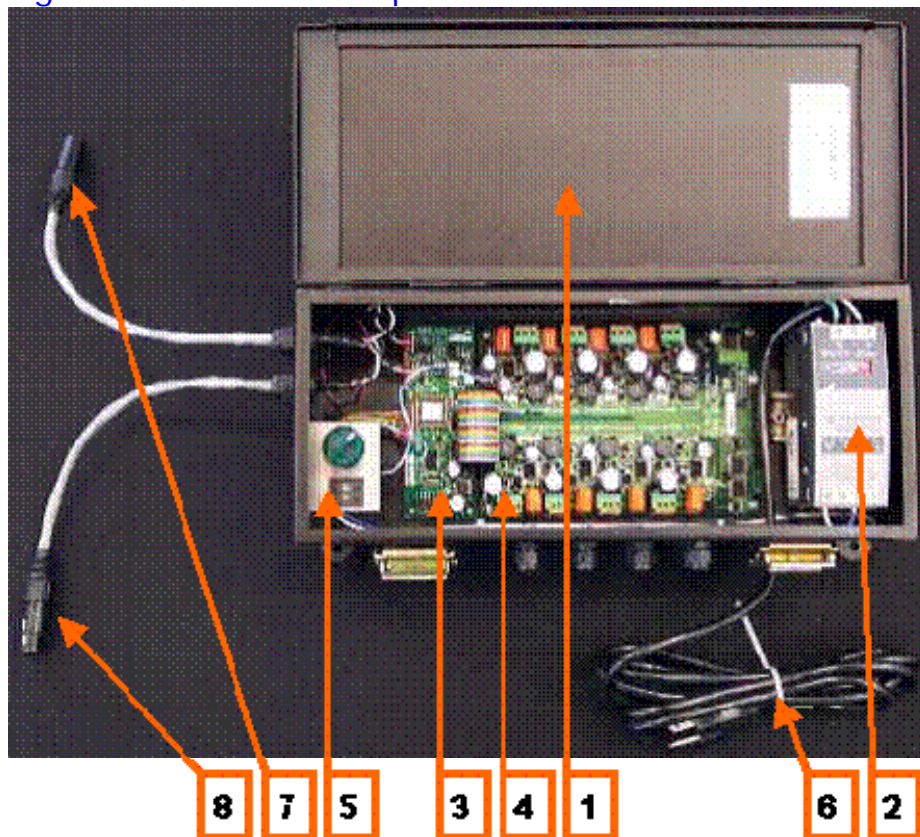
Not included, but required for DMX control:

DMX cabling & connectors
DMX termination resistor
DMX source (lighting board or other DMX generator)

The model number denotes the number of channels and the enclosure type.

Table - Model Descriptions

Powder coat painted steel NEMA-12 enclosure	BRIK-XEN-8S	BRIK-XEN-16S	BRIK-XEN-24S	BRIK-XEN-32S
Unpainted Stainless-steel NEMA-4X enclosure	BRIK-XEN-8SS	BRIK-XEN-16SS	BRIK-XEN-24S	BRIK-XEN-32SS
Channels & Lamps	8	16	24	32
Strobe Control Cards	1	2	3	4

All controller models use the same strobe lamps. (Colored lamps are available.) Each lamp combines a trigger coil and a xenon flash tube inside a tough, housing (strobe quick-disconnects available).

Figure - Controller with Cables and Lamps

Mechanical Specifications

This section lists mechanical specifications for the controllers and lamps.

Table - Controller's Mechanical Specifications

	BRIK-XEN-8S & BRIK-XEN-8SS	BRIK-XEN-16S & BRIK-XEN-16SS	BRIK-XEN-24S & BRIK-XEN-24SS	BRIK-XEN-32S & BRIK-XEN-32SS	
Length	40.64	63.50	88.90	109.22	Cm
Width	19.05				
Height (lid closed)	16.80				
Length	16.00	25.00	35.00	43.00	In
Width	7.50				
Height (lid closed)	6.61				
Controller Weight	7.7	11.3	13.3	20.4	Kg
	17.0	24.9	29.3	45.0	Lb
Operational Temperature Range[1]	-10...+50[2]	-25...+50	-25...+45		°C
	+14...+122	-13...+122	-13...+113		°F
Storage Temperature Range	-25...+85	-40...+85	-40...+85		°C
	-13...+185	-40...+185	-40...+185		°F

Table - Lamp's Mechanical Specifications

Lamp Dimensions (OD x L)	2.03 x 9.86	Cm
	0.8 x 3.88	In
Lamp Weight (without cable)	0.028	Kg
	1/16	Lb
Operational Temperature Range[3] (at 60/min flash rate)	-30...80	°C
	-22...+176	°F
Storage Temperature Range	-30...80	°C

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[1] Most limited range of any component of the controller box. Does not include lamps.
[2] Power Supply max temp of +70°C derated for unventilated enclosure.
[3] Assumes regular operation. Ambient temperature must be warmer for "first cold flash"

	-22...+176	°F

Electrical Specifications

This section lists electrical specifications for the controllers and lamps.

Table - Controller's Electrical Specifications

	BRIK-XEN-8S & BRIK-XEN-8SS	BRIK-XEN-16S & BRIK-XEN-16SS	BRIK-XEN-24S & BRIK-XEN-24SS	BRIK-XEN-32S & BRIK-XEN-32SS	
Universal Power Supply – Input					
Range Selector	Manual	Auto	Auto		Amp
Voltage (115 range)	85...132	90...132	90...132		V AC
Voltage (230 range)	184...264	180...264	180...264		V AC
Frequency	47...63	50...60 ±6%	50...60 ±6%		Hz
Typical Current[4] (115 VAC range)	1.6	2.1	4		Amp
Typical Current (230 VAC range)	0.8	1.2	2.2		Amp
Power Supply Fuse	3	4	6.3		Amp
Power (V x I)	160	246	448		VA
Universal Power Supply – Output					
Voltage	24				V DC
Current	3	5	10		Amp

Table - Lamp's Electrical Specifications

Flashtube Life	5,000,000	Flashes
Continuous Use Life (at max. rate & intensity)	58	Days
Maximum Continuous Flash Rate[5]	60	Flashes/min
Flashtube energy consumption	3.7	Joules/flash
Channel power (at max rate & intensity)	4.8	Watt/channel

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[4] Power Supply nameplate current at its rated load. Actual current will be less.
[5] Faster rates are possible. Contact Birket Engineering, Inc.

Installing the System

Qualified Electrician Required

Only a qualified electrician in compliance with the authority having jurisdiction should install, configure, use the diagnostics, or troubleshoot this system. Use of improper practice is illegal, dangerous, and will void the warranty.

You will need the following tools to complete the installation:

Small Screwdriver
Wire stripper/cutter

You may also wish to use:

Soldering Iron (to tin stripped cable ends) OR
Wire Ferrules & Crimper (to protect stripped cable ends)
Shrink Tubing (to dress stripped cable jacket)

Lamps are shipped standard w/50′ of cable. To terminate lamps to bulk cable or to replace lamps you will also need:

Two small adjustable wrenches

Mounting the Controller

Install each controller in an accessible place using accepted electrical control panel installation techniques in compliance with local regulations.

Your controller was provided with a painted or stainless-steel finish and it will be durable in an outdoor environment. However, you should avoid very wet, very hot, or very cold locations. See the Mechanical Specifications section for the tolerable ambient temperature range.

The controllers can be installed in any orientation required. We recommend installing the controller with the door opening from right to left with the strobe connectors on the right and the DMX connectors on the bottom. In this position the address and power switch labels are right side up and the door will not fall open or closed.

We recommend that you install the controller at a height that will make it convenient for you to connect the cables.

Figure – Preferred Mounting Orientation

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Making Connections

This section describes how to connect the various cables. You will need to connect the following types of cables:

Strobe Lamp Cables (up to 8, 16 or 32 per controller)
DMX In Cable
DMX Through Cable
Power Cable

330 Volts DC

Warning – Electrical Shock Hazard

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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 controller while the system is operating. Take care not to touch anything inside the controller when opening the lid to view the diagnostic LEDs.

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Example DMX Lighting System Interconnect

The system-interconnect drawing below shows an example of how to connect several controllers together into a system. Your system may contain only one or a different number or type of controller than shown here. Your DMX network may also include other DMX-controlled devices in addition to your strobe controller.

Figure – Example System Interconnect
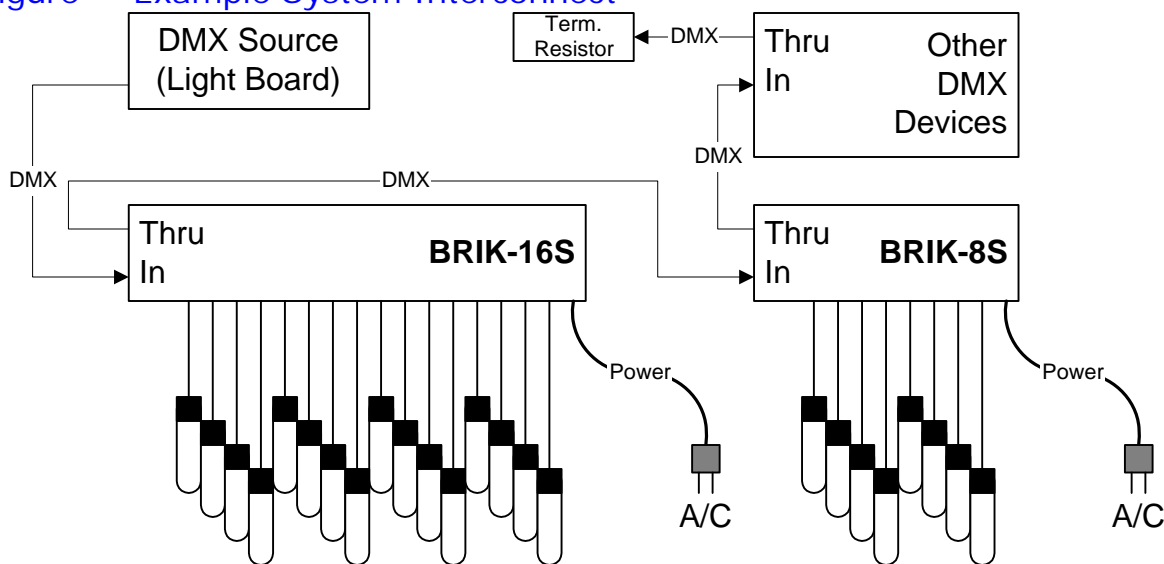
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Connecting the Strobe Lamp Cables

This section describes how to connect the strobe lamp cables. As the controllers are shipped standard with 50′ cables, you will usually only need to cut the cables to length (if desired) and connect them to the controller. This section also describes how to connect the cable to a lamp (if necessary) and how to replace a lamp.

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.

The following figures show the proper way of connecting the strobe cable wiring to the bulb connector and the controller connector, depending on which model strobe and type of cable selected.

Failure to connect the wires as shown will damage the lamps and void warranty.

Figure - Strobe Cable Connection
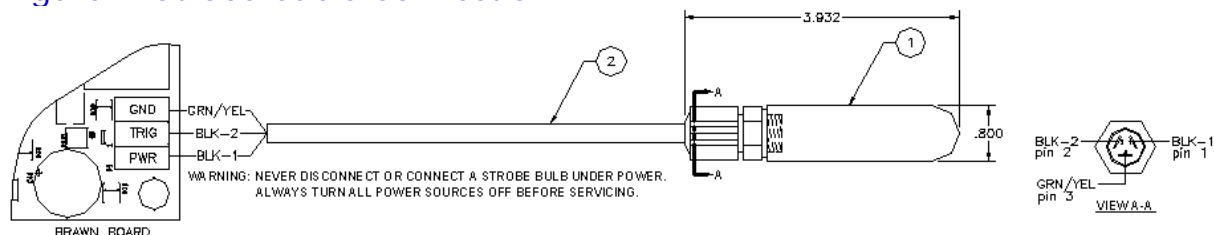
Table – Assembly No. A094-1

Item #	Qty	Part Number	Description
1	1	A091	ASSEMBLY, SB-001, STROBE BULB W/HARDWIRED INSULATION DISPLACEMENT CONNECTOR
2	A/R	601803	CABLE, 3 COND, 18 AWG, 600V, GRAY OR BLACK JACKET, OIL RESISTANT, INDOOR USE

Figure - Strobe Cable Connection
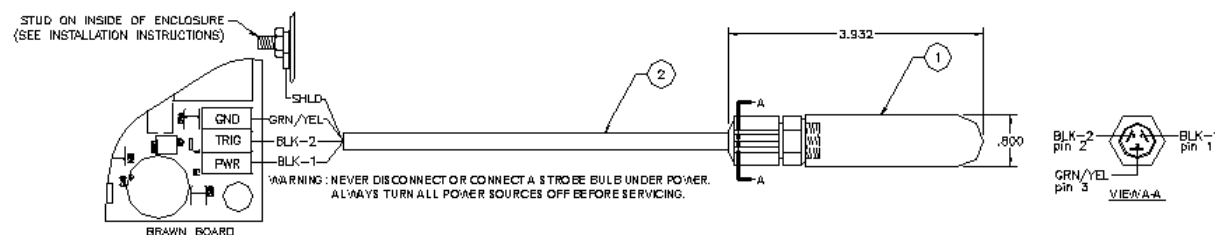
Table – Assembly No. A094-2

Item #	Qty	Part Number	Description
1	1	A091	ASSEMBLY, SB-001, STROBE BULB W/HARDWIRED INSULATION DISPLACEMENT CONNECTOR
2	A/R	221803S	CABLE, 3 COND, 18 AWG, 600V, EXPOSED RUN, BLACK JACKET, SHIELDED

Figure - Strobe Cable Connection
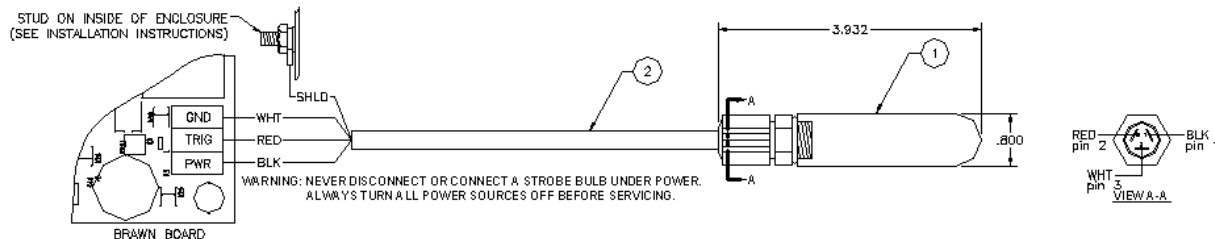
Table – Assembly No. A094-3

Item #	Qty	Part Number	Description
1	1	A091	ASSEMBLY, SB-001, STROBE BULB W/HARDWIRED INSULATION DISPLACEMENT CONNECTOR
2	A/R	8791	CABLE, 3 COND, 18 AWG, 450V, PVC GRAY JACKET, SHIELDED

Figure - Strobe Cable Connection
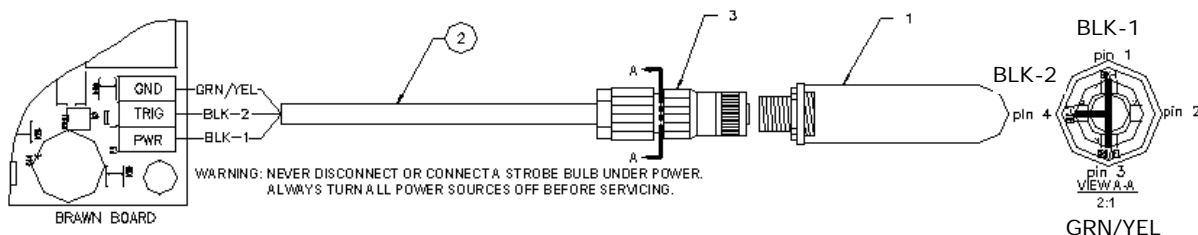
Table – Assembly No. A094-4

Item #	Qty	Part Number	Description
1	1	A095	ASSEMBLY, SB-002QD, STROBE BULB W/SCREW QUICK DISCONNECT
2	A/R	601803	CABLE, 3 COND, 18 AWG, 600V, GRAY OR BLACK JACKET, OIL RESISTANT, INDOOR USE
3	1	1641756	SACC-M12FS-4Q0-0.75, SENSOR PLUG CONN., 4-POS., FEMALE, STRAIGHT

Figure - Strobe Cable Connection
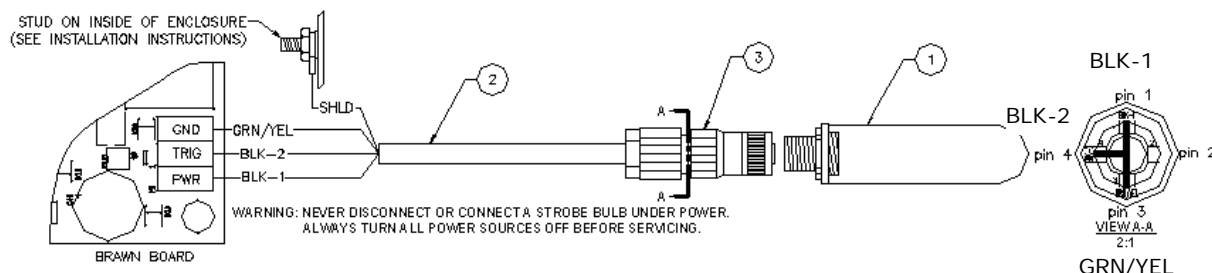
Table – Assembly No. A094-5

Item #	Qty	Part Number	Description
1	1	A095	ASSEMBLY, SB-002QD, STROBE BULB W/SCREW QUICK DISCONNECT
2	A/R	221803S	CABLE, 3 COND, 18 AWG, 600V, EXPOSED RUN, BLACK JACKET, SHIELDED
3	1	1641756	SACC-M12FS-4Q0-0.75, SENSOR PLUG CONN., 4-POS., FEMALE, STRAIGHT

Figure - Strobe Cable Connection
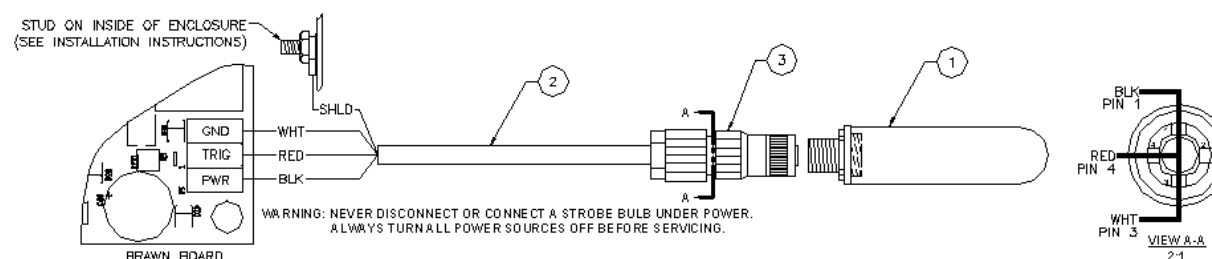
Table – Assembly No. A094-6

Item #	Qty	Part Number	Description
1	1	A095	ASSEMBLY, SB-002QD, STROBE BULB W/SCREW QUICK DISCONNECT
2	A/R	8791	CABLE, 3 COND, 18 AWG, 450V, PVC GRAY JACKET, SHIELDED
3	1	1641756	SACC-M12FS-4Q0-0.75, SENSOR PLUG CONN., 4-POS., FEMALE, STRAIGHT

Figure - Strobe Cable Connection
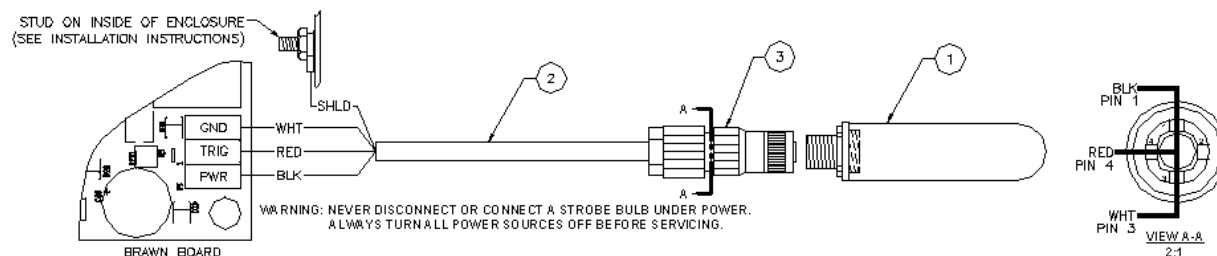
Table – Assembly No. A094-7

Item #	Qty	Part Number	Description
1	1	A095	ASSEMBLY, SB-002QD, STROBE BULB W/SCREW QUICK DISCONNECT
2	A/R	B83653	CABLE, 3 COND, 18 AWG, 300V, PLENUM RATED, RED JACKET, SHIELDED
3	1	1641756	SACC-M12FS-4Q0-0.75, SENSOR PLUG CONN., 4-POS., FEMALE, STRAIGHT

Figure - Strobe Cable Connection
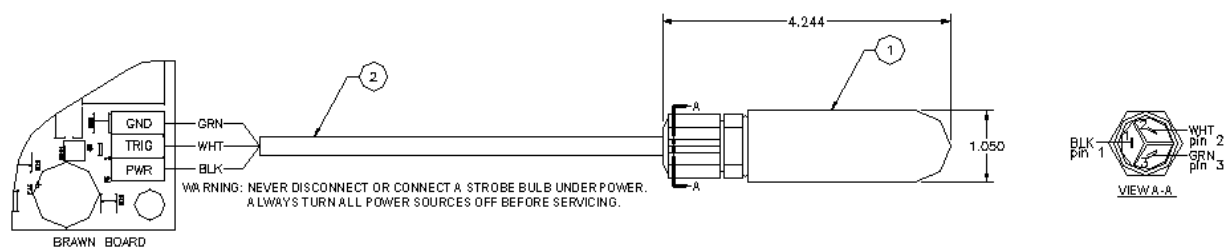
Table – Assembly No. A094-8

Item #	Qty	Part Number	Description
1	1	A092	ASSEMBLY, SB-003, STROBE BULB W/HARDWIRED INSULATION DISPLACEMENT CONNECTOR
2	A/R	S00W 18-3	CABLE, 3 COND, 18 AWG, 600V, SUBMERSIBLE, UNSHIELDED, BLACK JACKET

Connecting the Strobe Cable at the Controller

This section explains how to connect the lamp cables to the controller.

The strobe terminals inside the controller are spring clamp type. Please read the manufacturer recommended procedure among the attachments.

In order to reduce noise generated by the controller from interfering with external systems, i.e. RF and audio systems, the cable shielding must be grounded to the enclosure. The recommended method for connecting the strobe cable and grounding the shielding is as follows:

Make sure all power to the unit is disconnected and wait 10 minutes before proceeding.
Unplug all DMX cables (if any).
Once the strobe cable has been routed from the strobe light to the controller, prepare all cables for termination inside the controller. Excessive cable length will slightly reduce lamp brightness. Cut off excess cable if desired, leaving enough extra cable to make installation and maintenance easy. Any excess cable should be bundled and tied.

Figure - Stripped Strobe Cable with Shielding

- Strip approximately 18″ (45.72 cm) of the outer cable jacket.
- Use dressing shrink tubing on the cable shielding, leaving approximately ¼″ (6 mm) exposed in order to make good contact with the ring lug.

Figure - Ring Lug termination for Shield

- Cut each conductor to approximately 4″ (10 cm).
- You may wish to use dressing shrink tubing at the end of each cable jacket.
- Strip each conductor approximately ¼″ (6 mm) in order to make good contact with the connector.

You may wish to tin the ends or use wire ferrules.

- Using a small screwdriver, press gently on the orange tab in each terminal block to release the clamp and allow the wire to penetrate.
- Insert the wire in the respective hole. Make sure all wire strands penetrate and there are no strands outside the hole. Make sure the wire insulation has not penetrated the hole, as this will make a poor connection.
- Release the screwdriver while the wire is fully inserted. Pull gently on the wire to make sure it connected properly.

Figure – Insert in Strobe Terminal
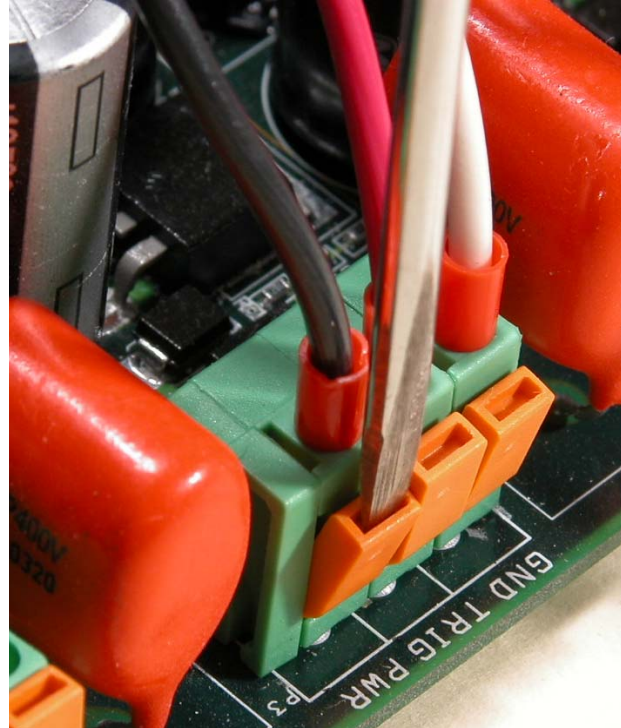
- Notice the labels PWR, TRIG, and GND on the edge of the PC board near the orange release tabs. Re-check that you have connected the conductors according to the wiring diagram and table above.

- Tighten all the cable grips where the cable enters the controller.
- Close and latch the controller's lid securely.

Figure – Terminated Strobe Cable
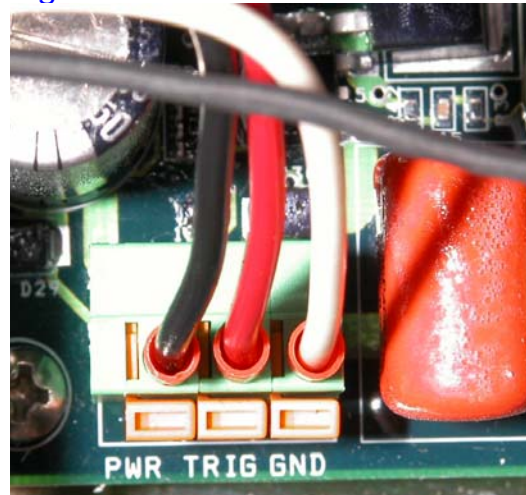
Connecting the Strobe Cable at the Lamp (3-pin, hardwired strobe shown)

This section explains how to connect a lamp to the end of its cable.

If your lamps are already connected to cables, you may skip this section.

If your lamps were delivered with separate bulk cable or if you need to reconnect a lamp for any reason, follow this connection procedure.

The strobe terminals inside the lamp use insulation displacement connectors. Please read the manufacturer recommended procedure among the attachments.

We recommend that you connect the cable to the lamp before mounting the strobe lamp and before connecting the strobe cable to the controller.

Figure - Correct Lamp Cable Termination (before trimming)

If you are making up strobe lamp cables using bulk cable, you must determine which END of the cable you should connect to the lamp. One end of the cable will have conductors in 1, 2, 3 order as you look clockwise around the end of the cable. The other end will have the same conductors in the reverse order: 3, 2, 1.

Figure - Reversal of Conductor Order

Choose the end of the cable that matches with the lamp connector WITHOUT having to reorder the conductors. If you have to rearrange the conductors to fit into the correct terminals, they will form a "knot" that will interfere with normal assembly of the lamp connector.

Figure - Reversed Conductors with Incorrect Knot
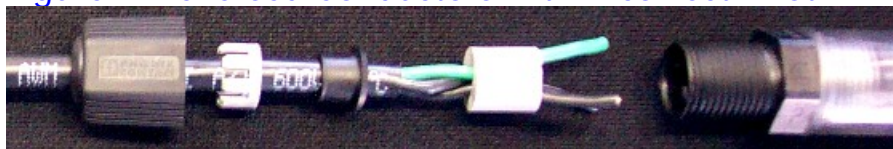
We recommend that you do NOT use dressing shrink tubing at the lamp end of the strobe cable because it will reduce the effectiveness of the watertight seal around the cable.

- Make sure all power to the unit is disconnected and wait eight minutes before proceeding.
- Unplug all DMX cables (if any) to protect other DMX equipment.

- Strip approximately 1″ (2 cm) of cable outer jacket. You will trim excess later.
- DO NOT strip the wires prior to termination. The connector is designed to work with the insulation intact.
- Insert each wire in the respective cartridge hole as indicated in the figures above. Avoid crossing the wires.
- Use wire cutters to trim the excess wire flush with the cartridge.
- Following the key arrangement on the cartridge insert the cartridge into the connector and apply gentle pressure.
- Bring the connector pieces against the cartridge and tighten by hand.
- Use two wrenches to tighten the connector until it stops. Do not over-tighten.

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Replacing Strobe Lamps (3-pin hardwired strobe shown)

This section explains how to remove a lamp from its cable to replace it.

If a strobe lamp is already connected to a cable and needs to be replaced, follow this replacement procedure. This procedure only covers the disassembly of the lamp. Follow the connection procedure on page 24 to reassemble the lamp.

- Make sure all power to the unit is disconnected and wait 10 minutes before proceeding.
- Unplug all DMX cables (if any).
- Using a set of appropriate wrenches, loosen the cable gland connector.
- Carefully slide the cable gland (3 pieces) away from the strobe lamp.
- Holding the strobe lamp in one hand and the cable on the other pull them apart.
- Remove the cartridge from the end of the cable (keep for later use).
- If the new strobe lamp has been supplied with a new cable connector, please use the new pieces. Otherwise, the pieces that were removed from the old strobe lamp can be used again.
- If this connector has been disassembled and reassembled many (10 or more) times, then cut off the cable end and discard the previously connected wires. The connector works best with fresh wires and insulation. You will need to re-strip the cable jacket back 1 inch (2.5 cm) from the end.
- Follow the connection procedure on page 24 to connect the new lamp.

Figure - Correct Lamp Cable Termination (before trimming)

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Standalone Operation without DMX

If you intend to use the controller in its standalone random blink mode, you will not need additional cables or equipment. We suggest that you plug the unused DMX "In" and "Thru" connectors together to protect them.
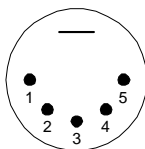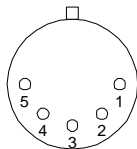
Connecting the DMX Network

If you intend to use the **STROBE-BRIK**™ under DMX control, you must connect it to your DMX source – probably a lighting control board. You will need to make or buy DMX cables to connect your lighting board, the strobe controller, and other DMX devices with a DMX network.

Your **STROBE-BRIK**™ controller uses standard 5-pin XLR DMX connectors on short "pig-tail" cables, one male and one female. These DMX In and DMX Through cables are located on the end of the unit. An "extension" DMX cable with a male XLR connector on one end and a female XLR connector on the other end will work to connect between two **STROBE-BRIK**™ controllers.

You may either buy ready-made DMX cables or build your own. If you are experienced with DMX (RS-485) networks and you want to build your own cables, please follow the pin-out below. We suggest that you use Belden-9729 or its equivalent. We use this cable for the "pig-tail" cables on the controller. Test each cable thoroughly with an ohmmeter to ensure that it is wired correctly and that there are no shorts between adjacent circuits.

Table - DMX 5-Pin XLR Connector Pin-out

DMX Input (Male)	Common Pin-out		DMX Thru (Female)
	1	Shield	
	2	DMX (-)	
	3	DMX (+)	
	4		
	5		

Please see "Recommended Practice for DMX512" by Adam Bennette, available from http://www.usitt.org, for more detailed information on making your DMX network.

Your **STROBE-BRIK**™ controller has quarter-load RS-485 (DMX) receiver circuitry that allows more DMX devices to be connected to a single DMX network chain than the standard limit of 32. If all devices use quarter-load receivers, up to 128 devices may be connected. (Actual performance will vary depending on your network.)

Using a DMX Network Termination Resistor

We recommend that you use a terminating resistor at the end of the DMX network (at the last **STROBE-BRIK**™ or other DMX device). This will eliminate signal reflections in the line and make your DMX communication to the controller more reliable.

You may use a ready-made terminating XLR connector or make your own. The terminating resistor should be soldered between the two DMX data lines inside the shell of the last XLR connector (Pins 2 and 3).

The resistor value should match the characteristic impedance of the DMX cable used (typically 90-120 Ω 1/4 Watt). Use a 100 Ω 1/4 Watt with Belden-9729 or equivalent DMX cable.

Please see "Recommended Practice for DMX512" by Adam Bennette, available from http://www.usitt.org, for more information on terminating your DMX network.

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Connecting A/C Power

Your **STROBE-BRIK™** is provided with a grounded power cord. This cord can be plugged into any standard Edison type receptacle.

If your facility does not use Edison type power receptacles or you would like to connect power directly to each controller, substitute the Edison plug with a termination that suits your facility. Please connect the (L)ine, (N)eutral, and Ground conductors as labeled on the power supply. (See Figure - Power Supply.)

Figure - Power Supply

Power Supply	Wire Color	Edison Plug
(L)ine	Black	Narrow spade
(N)eutral	White	Wide spade
(∇) Ground	Green	Round prong

Before applying power, check that the internal 24 VDC power supply is set to the proper input voltage range (115VAC or 230VAC). See the Electrical Specifications section for the permitted voltage ranges.

Please follow these guidelines when you connect your **STROBE-BRIK™** to the building's power supply:

Observe all the regulations of the authority having jurisdiction.
Stranded, 16 AWG wire or equivalent must be used.
Each power cable must include a ground conductor that must be terminated to an adequate ground.
See the Electrical Specifications section to determine the required circuit breaker size. For example: a single 8 or 16 strobe controller can be powered from a circuit having a 10 Amp circuit breaker.
For outdoor installations, approved liquid-tight cable seals must be used.

Tip: If you have any doubt about the voltage present on your power circuit, set the power supply selector switch to the 230 VAC range. In this position, voltages up to 264 VAC will not damage the power supply. If your line voltage is actually near 115 VAC, the power supply may not produce enough power to run the strobes, but the lower voltage will not damage it. Use a voltmeter to check your supply line's voltage.

A/C Power Line Filter

An A/C power line filter is required (in Europe) as protection against interference voltages from the AC lines, and is mounted inside the enclosure as close as possible to the AC input. The filter also helps to protect the AC lines by attenuating possible interferences generated in the enclosure.

The power line filter is not required for systems installed in the USA.

Figure – Power Line Filter for 1-Phase Systems

Configuring the Controller

Qualified Electrician Required

Only a qualified electrician in compliance with the authority having jurisdiction should install, configure, use the diagnostics, or troubleshoot this system. Use of improper practice is illegal, dangerous, and will void the warranty.

This section describes how to configure your controller for operation. Configuration requires these steps:
Auto-Calibration (Address 00 test)
Setting the DMX base address
Setting the mode of operation

Auto-Calibrating Your Installation

This section describes the "Double-Zero" (00) auto-calibration procedure. The controller will test each cable and adjust for your cable lengths.

The operation of the trigger coil and xenon bulbs in the remote strobe lamps is affected by the resistance of the cable between the controller and the lamp, which varies with cable type and length. This resistance must be taken into account in order to insure reliable operation and accurate brightness. **STROBE-BRIK™** automatically performs this analysis of your unique installation and adjusts its operation accordingly for optimum performance.

You must perform this procedure when the unit is first installed and again any time a strobe cable is changed. The controller will not function correctly until it you have calibrated your actual cable resistances.

Before performing the following startup procedure, the **STROBE-BRIK™** must be in its final mounting location with all corresponding strobe cables terminated at the desired length.

1. Make sure that the power to the unit is OFF.
2. Make sure that all desired strobe cables are connected. See Connecting the Strobe Lamp Cables for strobe termination directions.
3. Set the address switch to address 00.
4. If the controller has been powered recently, turn the power off and wait 8 to 10 minutes to insure that the circuits are discharged before testing.
5. Turn power ON to the **STROBE-BRIK™**.
6. The controller will light all channel diagnostic LEDs for about 30 seconds while voltages settle.

7. After 30 seconds, the unit will perform a cable resistance test on each strobe channel. Each channel's LED will light while the controller measures that channel's resistance. When it determines the correct resistance, the controller will test the cable by flashing the strobe four times. (Occasionally, a strobe may flash more than 4 times if the controller has trouble with the cable or lamp. You may want to look at the installation of these cables again to ensure maximum lamp life.)
8. Upon completion of the cable resistance detection routine, all strobes on the **STROBE-BRIK™** will flash simultaneously. This indicates that the test is complete.
9. Turn power OFF to the **STROBE-BRIK™**.

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Setting the DMX Channel Address Base

If you will be using your controller as part of a DMX system instead of as a stand-alone controller, follow this procedure to set the DMX base address. When using the controller in stand-alone mode, set the address to anything other than 00.

Make sure all power to the unit is disconnected and wait eight minutes before proceeding.
Set DMX base address with the address switch located inside the controller. The address switch is in hexadecimal (See Table - DMX Address Table (0 to 127) for a conversion table). The address selected will be the DMX address of the first strobe. Each consecutive strobe is controlled by the next consecutive DMX channel. (In Mode 3, each strobe uses two DMX channels.) Addresses of 256 or greater require that you install the JP1-MNT jumper. When the JP1-MNT jumper is installed, setting the address switch to 00 yields a DMX address of 256, 01 = DMX address 257, etc. up to F8 = DMX address 504. Addresses F9 – FF are reserved for factory tests.

Table - Example DMX Address Setting
With the address switch set to 0B, no JP1-MNT jumper and the controller in mode 0:

Strobe Channel	Hex DMX Address	Decimal DMX Addr
1	0B	11
2	0C	12
3	0D	13
4	0E	14
5	0F	15
6	10	16
7	11	17
8	12	18

In the tables below, the "Dec" column contains the desired decimal DMX base address, the "Hex" column contains the hexadecimal controller address switch setting, and a "y" in the "J" column indicates that you should install the JP1-MNT jumper.

Table - DMX Address Table (0 to 127)

Dec	Hex	J	Dec	Hex	J	Dec	Hex	J	Dec	Hex	J
cal	00	.	32	20	.	64	40	.	96	60	.
1	01	.	33	21	.	65	41	.	97	61	.
2	02	.	34	22	.	66	42	.	98	62	.
3	03	.	35	23	.	67	43	.	99	63	.
4	04	.	36	24	.	68	44	.	100	64	.
5	05	.	37	25	.	69	45	.	101	65	.
6	06	.	38	26	.	70	46	.	102	66	.
7	07	.	39	27	.	71	47	.	103	67	.
8	08	.	40	28	.	72	48	.	104	68	.
9	09	.	41	29	.	73	49	.	105	69	.
10	0A	.	42	2A	.	74	4A	.	106	6A	.
11	0B	.	43	2B	.	75	4B	.	107	6B	.
12	0C	.	44	2C	.	76	4C	.	108	6C	.
13	0D	.	45	2D	.	77	4D	.	109	6D	.
14	0E	.	46	2E	.	78	4E	.	110	6E	.
15	0F	.	47	2F	.	79	4F	.	111	6F	.
16	10	.	48	30	.	80	50	.	112	70	.
17	11	.	49	31	.	81	51	.	113	71	.
18	12	.	50	32	.	82	52	.	114	72	.
19	13	.	51	33	.	83	53	.	115	73	.
20	14	.	52	34	.	84	54	.	116	74	.
21	15	.	53	35	.	85	55	.	117	75	.
22	16	.	54	36	.	86	56	.	118	76	.
23	17	.	55	37	.	87	57	.	119	77	.
24	18	.	56	38	.	88	58	.	120	78	.
25	19	.	57	39	.	89	59	.	121	79	.
26	1A	.	58	3A	.	90	5A	.	122	7A	.
27	1B	.	59	3B	.	91	5B	.	123	7B	.
28	1C	.	60	3C	.	92	5C	.	124	7C	.
29	1D	.	61	3D	.	93	5D	.	125	7D	.
30	1E	.	62	3E	.	94	5E	.	126	7E	.
31	1F	.	63	3F	.	95	5F	.	127	7F	.

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Table - DMX Address Table (128 to 255)

Dec	Hex	J	Dec	Hex	J	Dec	Hex	J	Dec	Hex	J
128	80	.	160	A0	.	192	C0	.	224	E0	.
129	81	.	161	A1	.	193	C1	.	225	E1	.
130	82	.	162	A2	.	194	C2	.	226	E2	.
131	83	.	163	A3	.	195	C3	.	227	E3	.
132	84	.	164	A4	.	196	C4	.	228	E4	.
133	85	.	165	A5	.	197	C5	.	229	E5	.
134	86	.	166	A6	.	198	C6	.	230	E6	.
135	87	.	167	A7	.	199	C7	.	231	E7	.
136	88	.	168	A8	.	200	C8	.	232	E8	.
137	89	.	169	A9	.	201	C9	.	233	E9	.
138	8A	.	170	AA	.	202	CA	.	234	EA	.
139	8B	.	171	AB	.	203	CB	.	235	EB	.
140	8C	.	172	AC	.	204	CC	.	236	EC	.
141	8D	.	173	AD	.	205	CD	.	237	ED	.
142	8E	.	174	AE	.	206	CE	.	238	EE	.
143	8F	.	175	AF	.	207	CF	.	239	EF	.
144	90	.	176	B0	.	208	D0	.	240	F0	.
145	91	.	177	B1	.	209	D1	.	241	F1	.
146	92	.	178	B2	.	210	D2	.	242	F2	.
147	93	.	179	B3	.	211	D3	.	243	F3	.
148	94	.	180	B4	.	212	D4	.	244	F4	.
149	95	.	181	B5	.	213	D5	.	245	F5	.
150	96	.	182	B6	.	214	D6	.	246	F6	.
151	97	.	183	B7	.	215	D7	.	247	F7	.
152	98	.	184	B8	.	216	D8	.	248	F8	.
153	99	.	185	B9	.	217	D9	.	249	F9	.
154	9A	.	186	BA	.	218	DA	.	250	FA	.
155	9B	.	187	BB	.	219	DB	.	251	FB	.
156	9C	.	188	BC	.	220	DC	.	252	FC	.
157	9D	.	189	BD	.	221	DD	.	253	FD	.
158	9E	.	190	BE	.	222	DE	.	254	FE	.
159	9F	.	191	BF	.	223	DF	.	255	FF	.

Table - DMX Address Table (256 to 383)

Dec	Hex	J	Dec	Hex	J	Dec	Hex	J	Dec	Hex	J
256	00	y	288	20	y	320	40	y	352	60	y
257	01	y	289	21	y	321	41	y	353	61	y
258	02	y	290	22	y	322	42	y	354	62	y
259	03	y	291	23	y	323	43	y	355	63	y
260	04	y	292	24	y	324	44	y	356	64	y
261	05	y	293	25	y	325	45	y	357	65	y
262	06	y	294	26	y	326	46	y	358	66	y
263	07	y	295	27	y	327	47	y	359	67	y
264	08	y	296	28	y	328	48	y	360	68	y
265	09	y	297	29	y	329	49	y	361	69	y
266	0A	y	298	2A	y	330	4A	y	362	6A	y
267	0B	y	299	2B	y	331	4B	y	363	6B	y
268	0C	y	300	2C	y	332	4C	y	364	6C	y
269	0D	y	301	2D	y	333	4D	y	365	6D	y
270	0E	y	302	2E	y	334	4E	y	366	6E	y
271	0F	y	303	2F	y	335	4F	y	367	6F	y
272	10	y	304	30	y	336	50	y	368	70	y
273	11	y	305	31	y	337	51	y	369	71	y
274	12	y	306	32	y	338	52	y	370	72	y
275	13	y	307	33	y	339	53	y	371	73	y
276	14	y	308	34	y	340	54	y	372	74	y
277	15	y	309	35	y	341	55	y	373	75	y
278	16	y	310	36	y	342	56	y	374	76	y
279	17	y	311	37	y	343	57	y	375	77	y
280	18	y	312	38	y	344	58	y	376	78	y
281	19	y	313	39	y	345	59	y	377	79	y
282	1A	y	314	3A	y	346	5A	y	378	7A	y
283	1B	y	315	3B	y	347	5B	y	379	7B	y
284	1C	y	316	3C	y	348	5C	y	380	7C	y
285	1D	y	317	3D	y	349	5D	y	381	7D	y
286	1E	y	318	3E	y	350	5E	y	382	7E	y
287	1F	y	319	3F	y	351	5F	y	383	7F	y

Table - DMX Address Table (384 to 511)

Dec	Hex	J	Dec	Hex	J	Dec	Hex	J	Dec	Hex	J
384	80	y	416	A0	y	448	C0	y	480	E0	y
385	81	y	417	A1	y	449	C1	y	481	E1	y
386	82	y	418	A2	y	450	C2	y	482	E2	y
387	83	y	419	A3	y	451	C3	y	483	E3	y
388	84	y	420	A4	y	452	C4	y	484	E4	y
389	85	y	421	A5	y	453	C5	y	485	E5	y
390	86	y	422	A6	y	454	C6	y	486	E6	y
391	87	y	423	A7	y	455	C7	y	487	E7	y
392	88	y	424	A8	y	456	C8	y	488	E8	y
393	89	y	425	A9	y	457	C9	y	489	E9	y
394	8A	y	426	AA	y	458	CA	y	490	EA	y
395	8B	y	427	AB	y	459	CB	y	491	EB	y
396	8C	y	428	AC	y	460	CC	y	492	EC	y
397	8D	y	429	AD	y	461	CD	y	493	ED	y
398	8E	y	430	AE	y	462	CE	y	494	EE	y
399	8F	y	431	AF	y	463	CF	y	495	EF	y
400	90	y	432	B0	y	464	D0	y	496	F0	y
401	91	y	433	B1	y	465	D1	y	497	F1	y
402	92	y	434	B2	y	466	D2	y	498	F2	y
403	93	y	435	B3	y	467	D3	y	499	F3	y
404	94	y	436	B4	y	468	D4	y	500	F4	y
405	95	y	437	B5	y	469	D5	y	501	F5	y
406	96	y	438	B6	y	470	D6	y	502	F6	y
407	97	y	439	B7	y	471	D7	y	503	F7	y
408	98	y	440	B8	y	472	D8	y	504	F8	y
409	99	y	441	B9	y	473	D9	y	rsvd	F9	y
410	9A	y	442	BA	y	474	DA	y	rsvd	FA	y
411	9B	y	443	BB	y	475	DB	y	rsvd	FB	y
412	9C	y	444	BC	y	476	DC	y	rsvd	FC	y
413	9D	y	445	BD	y	477	DD	y	rsvd	FD	y
414	9E	y	446	BE	y	478	DE	y	rsvd	FE	y
415	9F	y	447	BF	y	479	DF	y	rsvd	FF	y

Setting the Mode of Operation

This section describes how to set the desired mode of operation for your controller.
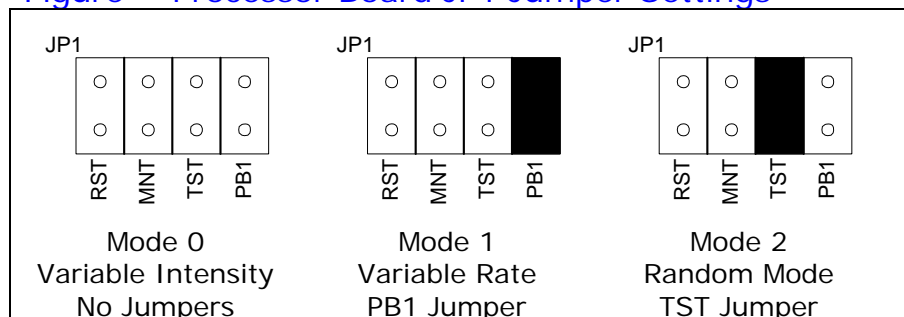
Warning – Epileptic Seizures

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.

The **STROBE-BRIK**™ has three modes of operation. These modes are described below and are selected by installing jumpers on the processor board's JP1 jumper block (Shown below).

Figure - Processor Board JP1 Jumper Settings

Mode 0	Mode 1	Mode 2
Variable Intensity	Variable Rate	Random Mode
No Jumpers	PB1 Jumper	TST Jumper

Mode 2 – Stand-alone Operation

Install jumper JP1–TST in the jumper header and set the address switch to a non-zero address.

All the strobes will flash at various pre-determined frequencies between 28 and 67 flashes/minute, giving the impression of random blinking. The intensity is fixed at 80%.

No DMX signal is needed. Any DMX commands sent to the unit will be ignored. Strobes automatically begin flashing in Random Mode upon power-up after the JP1–TST jumper is installed.

Mode 0 – DMX Individual Channel Control

Remove all jumpers from the JP1 header.

The desired strobe(s) will flash at intensity set by the DMX signal.

Set the DMX base channel with the hexadecimal address switch inside the **STROBE-BRIK**™. Each strobe will be controlled by one DMX channel.

Use an external lighting console or DMX generator (provided by others) to set the desired DMX channel(s) to a non-zero value. A non-zero value will charge a channel to the desired intensity. Allow at least 1 second for the strobe to charge before triggering. To trigger the strobe(s), immediately drop the charged channel(s) to zero (0%). The strobe will flash when you command it "off". The strobe will immediately begin to recharge to the minimum even if you leave the channel at zero. When you raise the channel to a higher value, the circuit will continue to charge up to your value.

Note: If you charge a strobe up to a high DMX value, and then reduce it without flashing, the charge will slowly drain down to the new desired value. It may take a minute or more to reach the new value.

The maximum rate is one flash per second per strobe to prevent overheating. (Please contact Birket Engineering, Inc. or your distributor if you need to flash at a faster rate.)

1 (1%) will charge the strobe to minimum intensity, but not flash - yet.

255 (100%) will charge the strobe to maximum, but not flash - yet.

0 will discharge the strobe by flashing it.

Example:
Flash Strobe 10 at 100% Intensity
Select base address to 0A (decimal 10)
Set DMX address 10 to 255 (100%)
Wait at least 1 second
Quickly drop DMX address 10 to 0%
Strobe 10 flashed at 100% intensity

Mode 1 – DMX Variable Rate

Install jumper JP1–PB1 in the jumper header.

The strobes will flash at a rate set by the DMX signal at 80% of maximum intensity.

0 on a DMX channel will not flash the strobe.

1 is reserved and will not flash the strobe.

2 will cause the strobe to flash approximately 25 times per minute.

255 (100%) will cause the strobe to flash 60 times per minute.

The strobe will continue to flash at the selected rate as long as a non-zero value is present.

Note: Rates are approximate and not synchronized. If you need synchronized blinking, use Mode 0 and program the exact pattern you need using DMX.

Using the Diagnostics

Qualified Electrician Required

Only a qualified electrician in compliance with the authority having jurisdiction should install, configure, use the diagnostics, or troubleshoot this system. Use of improper practice is illegal, dangerous, and will void the warranty.

Each strobe circuit on the controller board has a diagnostic LED indicator, highlighted on the close-up below. The LED indicators are located next to each strobe connection on the PC board and show the electrical condition of that channel. They are highly visible when operating.
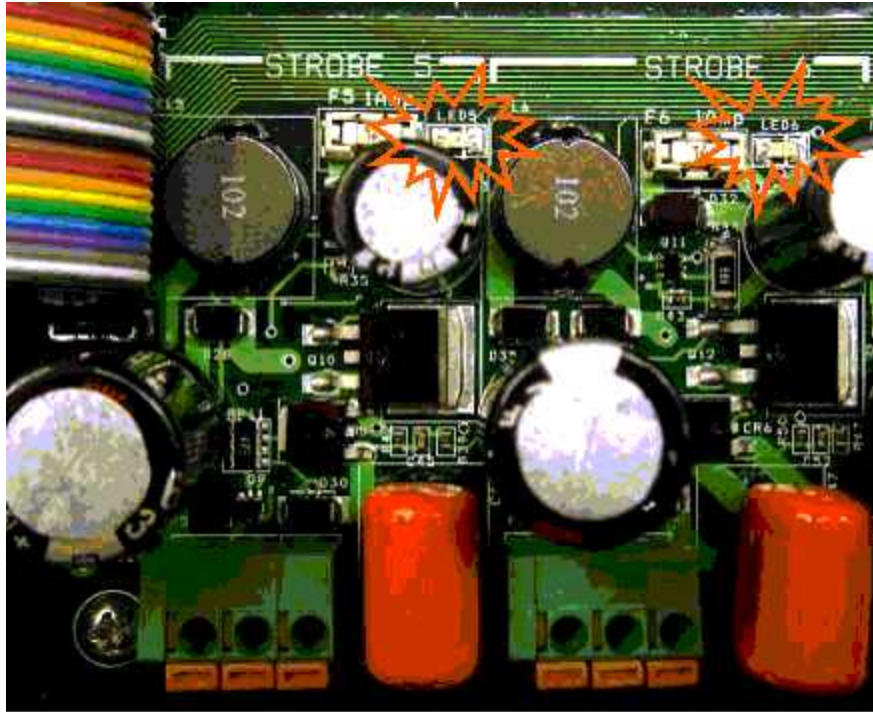
330 Volts DC

Warning – Electrical Shock Hazard

The **STROBE-BRIK**™ 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 controller while the system is operating. Take care not to touch anything inside the controller when opening the lid to view the diagnostic LEDs.

The diagnostics are encoded in the following way:

Table - Diagnostic Indicators

Indicator	Diagnostic	Indicates
Off	Power or LED failure	Power is off or the LED is bad.
1 blink	Good channel (LED test)	Power is on and the strobe channel is OK (and the LED obviously still works)
2 blinks	The capacitor did not charge	May be due to: Ground fault Shorted wire in strobe cable Blown fuse
3 blinks	Not used	Not used
4 blinks	The capacitor did not discharge when triggered	May be due to: Broken wire in strobe cable A worn-out xenon bulb

When all channels are operating normally, all LEDs will blink together once. Channels with problems will be easy to spot because their LEDs will continue to blink while the normal channel's LEDs are off.

Troubleshooting the System

Qualified Electrician Required

Only a qualified electrician in compliance with the authority having jurisdiction should install, configure, use the diagnostics, or troubleshoot this system. Use of improper practice is illegal, dangerous, and will void the warranty.

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

Do not Attempt to Repair the Controller

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

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

Why are my strobe lamps not flashing?

Is the power to the controller ON?
Is the controller connected to the correct power?
Is the controller's power supply configured for the correct power range? (115 VAC or 230 VAC ranges)
Have you performed the auto-calibration procedure?
Is the base address switch set to the desired base DMX address?
Is the controller configured to the correct mode for your DMX program?
Is the controller connected to a working DMX source (light board)?
You may confirm normal operation of the controller without a DMX source by setting the controller to Mode 2 – stand-alone operation. This will confirm that the controller can flash all the channels.

Why is this strobe lamp not flashing?

Look inside the **STROBE-BRIK**™ and observe the LED corresponding to the channel you are attempting to flash. See Using the Diagnostics for a description of the LED diagnostics.
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.
Does the DMX program command the strobe to flash?
Check that the channel can flash the strobe by setting the controller to Mode 2 – stand-alone operation.

Why is this strobe lamp flashing unexpectedly?

Is the **STROBE-BRIK**™ in random mode? If the TST jumper is installed on JP1, all strobes will flash randomly.
Is the controller configured in the correct mode?
Is the DMX address switch set correctly for your DMX system?
Is the controller receiving a clean, clear DMX signal?

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 **STROBE-BRIK**™. 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 **STROBE-BRIK**™ owners and improve the product.

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Glossary

Address: (also DMX address) The number from 1 to 512 that selects a particular DMX device or dimmer. Some devices, like the **STROBE-BRIK™**, use a range of addresses to control multiple or complex devices.

Base Address: The lowest DMX address in the range of addresses recognized by the **STROBE-BRIK™**. You must set this number (in hexadecimal) on the address switch inside the controller.

Channel: (also strobe channel) The number from 1 to 8, 16, 24, or 32 (depending on the model of **STROBE-BRIK™**) of the circuit that controls a strobe lamp.

Controller: The central box of a **STROBE-BRIK™** unit, to which eight, 16, or 32 remote strobe lamps may be connected.

DMX: (also DMX-512) The standard lighting network defined by USITT in common use for lighting and stage-control systems. It is a distant relative of the "serial" communications familiar to users of modems and PC "COM1" ports, but uses a unique baud rate and protocol tailored to lighting control. Please see "Recommended Practice for DMX512" by Adam Bennette, available from http://www.usitt.org

Ground Fault: An undesired connection of a strobe cable wire to the walls, floor, metal frame, cabinet, dirt, etc. A ground fault can cause a hazardous electrical shock and can prevent reliable operation.

Intensity: The brightness of a strobe flash. The controller adjusts the amount of energy it sends to the xenon strobe light to control the intensity or brightness of each flash. The controller takes longer to "charge up" for a high-intensity flash than for a low-intensity flash.

Lamp: The remote "light bulb", several of which are connected to one **STROBE-BRIK™** controller. Each lamp includes a xenon flash tube and a trigger coil in a tough U-V resistant, water-resistant housing.

Open: The undesired lack of connection of the strobe cable to the controller or to the lamp. Opens can be caused by damage to the cables or other improper wiring. The controller cannot trigger an "open" lamp.

Rate: The number of strobe flashes per minute. The controller determines the flash rate by changing the time it waits between each flash.

Short: The undesired connection of the conductors of a strobe cable to each other or to another object (see "ground fault"). Shorts can be caused by damage to the cables or other improper wiring. The controller cannot charge a "shorted" lamp.

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 **STROBE-BRIK**™ 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 **STROBE-BRIK**™, please contact us for technical support at:

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

By email at support@birket.com

By telephone +1 (407) 290-2000 (USA) 9:00 AM to 5:00 PM Eastern Time

Limited Warranty

Strobe Controller: Birket Engineering, Inc. will repair or replace your **STROBE-BRIK**™ controller 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." on page 46

Shipping: You must send defective devices to us at your expense. Contact Birket Engineering before shipping to obtain a Returned Materials Authorization (RMA) number. Birket is not responsible for shipping damage due to improper packaging. We will return new or repaired devices to you at our expense.

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 **STROBE-BRIK**™ 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 xenon flashtube manufacturer rates flashtube life at ten million flashes. Birket Engineering conservatively rates strobe lamp life at five million flashes when they are used with our controller, up to full intensity, at rates up to one flash per second, in ambient temperatures up to 120° F (50° C). You may achieve many more than five million blinks without noticeable degradation.

Assuming a five million flash-life in these conditions, for example:

If your flash rate averages	And you operate	Your lamp should last
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:
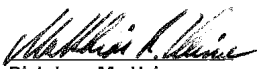
High ambient temperature (hot mounting location),
Restricted air movement near the lamp (confined mounting location, or objects closer than 0.375″ to lamp housing),
High energy delivered to the lamp with each flash (full intensity), and
Insufficient cooling time between flashes (rapid flashes without 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 controller 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.

[TOC]

Certifications

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C E R T I F I C A T E

of Conformity

EC Council Directive 89/336/EEC

as last amended by EC Directive 93/68/EEC

Electromagnetic Compatibility

TÜV

Registration No.:   **AE 72042299 0001**

Report No.:   **30462198 001**

Holder: **Birket Engineering, Inc.**
PO Box 610190
Ocee FL 94761
USA

Product: Kontrollgerät
DMS-based Strob System (Controllers and Strobe)

Identification: Model Number: BRIK-32SS
Serial Number: 9999-500-01

Tested acc. to: EN 55103-1:1996
EN 55103-2:1996

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex III of Council Directive 89/336/EEC, in its latest amended version, referred to as the EMC Directive. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Article 10.1 of the Directive.

Certification Body

Cologne,   24.11.2004

Dipl.-Ing. M. Heinze

TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln

CE The CE marking may only be used if all relevant and effective EC Directives are complied with. CE

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C E R T I F I C A T E

TÜV

of Conformity
Low Voltage Directive 73/23/EEC
as last amended by EEC Directive 93/68/EEC

Registration No.:   AN 72042298 0001

Report No.:   30472197 001

Holder: Birket Engineering, Inc.
PO Box 610190
Ocee FL   94761
USA

Product: Kontrollgerät
DMS-based Strob System (Controllers and Strobe)

Identification: Model Number: BRIK-32SS
Serial Number: 9999-500-01

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all revision of Annex I of Council Directive 73/23/EEC, in its latest amended version, referred to as the Low Voltage Directive. This certificate does not imply assessment of the series-production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Annex III of the Directive.

Certification Body

Cologne,   24.11.2004

Dipl.-Ing. M. Raap

TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln

CE   The CE marking may be used if all relevant and effective EC Directives are complied with. CE