



HOW TO SPECIFY A MONARCH STROBOSCOPE August 2007

Answer the following questions to determine the Stroboscope that is right for your application.

1. The First and Most Important Question To Ask is “Do you Only Want to Check RPM?” If the answer is “yes” then maybe you should buy an Optical Tachometer instead.

Ask the user if they can shut down the device and attach a piece of Reflective Tape to the rotating surface. If your customer cannot shut the rotating equipment down, then he must use a Stroboscope to check RPM while the device is running. Many times users want to “Stop or Freeze” the motion for Diagnostic Inspection with a Stroboscope to view what is happening at that particular RPM or Flashes Per Minute (FPM).

Checking RPM of a rotating device with a Stroboscope is more complicated and takes practice as compared to using an Optical Tachometer. A Stroboscope will give the user more than (1) “stop motion” RPM readings and these are called “harmonics”. Harmonics are multiple single, double, triple, etc. “Stopped Motion Images” at various RPM or FPM settings. Harmonics must be used to measure actual RPM of devices that exceed the maximum flashes per minute (FPM) rate of a particular Stroboscope. Digital Stroboscopes can be utilized to measure up to 99,999 RPM by calculating 2-point harmonic readings and applying the math formulas as indicated in the Monarch Stroboscope Instruction Manual. The actual RPM is the first single image viewed while decreasing FPM from a higher flash rate. Verify the actual RPM by dividing the first single motion image RPM by two to view the same single image (one half harmonic). Viewing “Stopped Motion” or measuring RPM below 300 RPM is very difficult, if not impossible, for the average person’s eyesight due to the slow flash rate.

Best results for measuring RPM is for the user to fix his eyes on a single reference target a bolt head, keyway, scratch on the shaft or to place a reference mark such as tape, paint or chalk on a symmetrical object. When the user rotates the flash rate control knob “Very Slowly”, the object will appear to stop rotating and their eyes will see the “Stopped Motion”. Monarch provides a very detailed Instruction Manual on How To Use the Strobe. If you decided to purchase a Tachometer instead of a Stroboscope, please read How to Specify Monarch Tachometers.

2. Next question is, “does your strobe application require a completely Portable Stroboscope with internal rechargeable batteries or an AC- Line powered model?”

BATTERY MODELS

- Nova Strobe Basic Battery x = bbx
- Nova Strobe Deluxe Battery x = dbx
- Phaser Battery PB x = pbx
- Palm Strobe x = psx
- Vibration Battery x = vbx

AC Line/Mains POWERED MODELS

- Nova Strobe Basic AC = bax
- Nova Strobe Deluxe AC = dax
- Phaser-Strobe Models PB 115 and PB 230 can be operated continuously from AC Power when operated with their optional power supply/battery charger Model PSC-pbxU.

NOTE: Strobes can be operated / recharged from 115 or 230Vac power. Select the strobe part number for the power required. Kit’s are also available. Example: NSdbx115 or NSdbx Kit 230.

3. What Maximum RPM Range or Flashes Per Minute Range Do You Need to Measure?

<u>RPM/ FPM</u>	<u>RANGE</u>	<u>ACCURACY</u>	<u>RESOLUTION</u>
Nova Strobe bbx/bax	30-10,000	± .002%	0.1
Nova Strobe dbx/dax	30-20,000	± .002%	0.1
Phaser Strobe pbx	30-50,000	± .002%	.01-1.0
Palm Strobe psx	100-12,500	± .01%	1.0
Vibration Battery vbx	100-12,000	± 1	1.0



4. What Brightness Does Application Require from a Stroboscope?

AVERAGE POWER WATTS

	A/C POWER	BATTERY POWERED
Nova Strobe bbx		13W
Nova Strobe bax	13W	
Nova Strobe dax	13W	
Nova Strobe dbx		13W
Phaser-Strobe pbx	13W	13W
Palm Strobe x		7.9W
Vibration Strobe x		13W

5. Does Application Require External Input or Output Trigger Signals from Strobe?

The Nova-Strobe dax , NSdbx, Phaser-Strobe pbx and Palm Strobe psx have 1/8 inch (3.5mm) phone plug jacks for Internal and External trigger signals typically 0-5V TTL.

The TTL output trigger signal allows one Master Strobe to fire (trigger) another Strobe at same time when you “daisy chain” (connect 5 strobes in series) to illuminate a larger surface area if required.

The Monarch “Self Powered Sensor” (SPSR-115/230) can be used to trigger the Palm Strobe. The Nova-Strobes and Phaser Strobe can be triggered by the “Remote Optical Sensor” (ROS-P), “Magnetic Sensor” (MT-190P) or the “Infrared Sensor” (IRS-P). Phase Shifting is electronically delaying the flash from a fixed reference point in either degrees or time to assist in high or low speed machinery timing or vibration analysis studies.

6. Will Stroboscope Be Operated In a Moist or Dirty Environment?

The optional “Splash Proof Cover” (SPC-1) can be used on ONLY THE BATTERY POWERED Nova-Strobes or Phaser-Strobe when operated in internal battery mode. The clear vinyl cover slips over the entire Strobe like a glove to keep foreign material from getting inside the Stroboscope. Customers can fabricate their own protective splash proof plastic or vinyl cover to keep contaminations out.

7. N.I.S.T. Certificate of Calibration Required with Stroboscope?

The NSdax, NSdbx, Phaser pbx and Palm Strobe psx are supplied with a Certificate of Calibration traceable to N.I.S.T. (National Institute of Standards and Technology). Re-certification can be obtained at a cost of \$95.00. Initial certificate is good for 12-18 months min. Rotate your stock to keep s/n current.

8. What Accessories Does Customer Require for Strobe?

Refer to the appropriate technical data and price sheet for the accessories available for the respective Strobe models.

Need?

Spare Lamp - Carry Cases - Input/Output Cables- Remote Sensor – Splash Proof Cover etc.