STROBOSCOPE
APPLICATION NOTE

No. 202 January 1999

HOW TO SPECIFY & ORDER MONARCH STROBOSCOPES

QUESTIONS TO ASK YOUR CUSTOMER/USER:

1. The First and Most Important Question To Ask the User is "Do you Only Want to Check RPM", 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 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 eye sight due to the slow flash rate.

Best results for measuring RPM is for the user to fix his eyes on a single 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". If your customer has decided to purchase a Tachometer instead of a Stroboscope, please read "Application Note 102", dated December 1995 on how to specify Monarch Tachometers.

2. Does Your Strobe Application Require a Completely Portable Stroboscope With Internal Rechargeable Batteries or a Mains Powered "Plug-In" Model for Either 115 Vac or 230 Vac Mains Power?

BATTERY MODELS	MAINS AC POWERED MODELS
Nova-Strobe Analog Battery - AB 115	Nova-Strobe Analog AC Powered - AA 115
Nova-Strobe Analog Battery - AB 115 Kit	Nova-Strobe Analog AC Powered - AA 115 Kit
Nova-Strobe Analog Battery - AB 230	Nova-Strobe Analog AC Powered - AA 230
Nova-Strobe Analog Battery - AB 230 Kit	Nova-Strobe Analog AC Powered - AA 230 Kit
Nova-Strobe Digital Battery - DB PLUS 115	Nova-Strobe Digital AC Powered - DA PLUS 115
Nova-Strobe Digital Battery - DB PLUS 115 Kit	Nova-Strobe Digital AC Powered - DA PLUS 115 Kit
Nova-Strobe Digital Battery - DB PLUS 230	Nova-Strobe Digital AC Powered - DA PLUS 230
Nova-Strobe Digital Battery - DB PLUS 230 Kit	Nova-Strobe Digital AC Powered - DA PLUS 230 Kit
Phaser-Strobe Battery - PB 115	*Phaser-Strobe AC Powered - PB 115 Kit
Phaser-Strobe Battery - PB 115 Kit	*Phaser-Strobe AC Powered - PB 230 Kit
Phaser-Strobe Battery - PB 230	
Phaser-Strobe Battery - PB 230 Kit	

***NOTE:** Phaser-Strobe Models PB 115 and PB 230 can be operated continuously from Mains Power when operated with their respective power supply/battery charger Model PSC-3 or PSC-4.

3. What Typical RPM Range or FPM Range Do You Desire To Measure?

	RPM/FPM		
	RANGE	ACCURACY	RESOLUTION
Nova-Strobe AA	100-8000	± 2%	250
Nova-Strobe AB	100-8,000	± 2%	250
Nova-Strobe DA PLUS	30-14,000	0.01	0.1
Nova-Strobe DB PLUS	30-14,000	0.01	0.1
Phaser-Strobe PB	30-32,500	± .01%	.05-1.0

4. What Brightness Does Application Require From a Stroboscope?

	AVERAGE POWER WATTS	
	A/C POWER	BATTERY POWERED
Nova-Strobe AA	7W	
Nova-Strobe DA	15W	
Phaser-Strobe PB	10W	
Nova-Strobe AB		7W
Nova-Strobe DB PLUS		10W
Phaser-Strobe PB		10W

5. Does Application Require Triggering of Strobe From an External Source?

"ONLY" the Digital Model Nova-Strobe and Phaser-Strobe can accept an external 0-5V TTL input trigger signal. The TTL output signal allows one Strobe to fire (trigger) another Strobe at same time (daisy chain) to illuminate a larger surface area if required.

Users will typically provide an external trigger signal as an input to the Digital Strobe from a signal source on the equipment the Stroboscope is mounted upon.

The Monarch "Self Powered Sensor" (SPS-5) can be used to trigger the "Digital" - Nova-Strobes. The "Remote Optical Sensor" (ROS-5P) or "Magnetic Sensor" (MT-190) can be used to trigger the Phaser-Strobe for phase shifting applications. 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 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.

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

All Digital Nova-Strobe Plus's and Phaser-Strobes 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 $85.00.

Phaser-Strobe models include a N.I.S.T. Certificate of Calibration at no additional charge.

8. The Entire DB PLUS and Phaser-Strobe Families Carry CE Certification

9. What Accessories Does Customer Require For Nova-Strobe or Phaser-Strobe Models?

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