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Fluke 820 Stroboscope

Technical Data

Rugged, compact and easy-to-use

Investigate and observe potential mechanism failure with confidence on a variety of machinery, in a wide range of industries, without making physical contact with the machine. The Fluke 820 Stroboscope is a rugged, compact, portable strobe ideal for stop motion diagnostics, mechanical trouble-shooting, and process or product research and development.



The Fluke 820 Stroboscope is a simple, easy to use tool to stop motion for measurement and diagnostic purposes allowing you to:

- Identify the running speed of rotating equipment without stopping the operation or making contact with machinery
- Stop motion for diagnoses of parasitic oscillations, flaws, slippage or unwanted distortions
- Measure speed of rotation or frequency of a rotating shaft, speaker, or mechanical part
- Identify part numbers or other markings

Key features:

- High-intensity 7 LED array—4,800 Lux @ 6,000 FPM/30 cm
- 30 to 300,000 FPM (Flashes Per Minute) = RPM or CPM
- Rugged, durable design—1 meter drop
- High accuracy, 0.02 % (± 1 digit)
- LCD display, multiple lines
- Check the rotating speed of machinery without physical contact or need for reflective tape
- High efficiency LED solid-state light source—never needs replacement like traditional xenon lamps.
- Pulse width modulation for sharp images at high speed
- Advance or retard flash timing for viewing gear teeth, cutting surfaces, repeats or "drifting" images
- Push button operation with x2 and ÷2 buttons for easy adjustment.
- Ease of use and ergonomic design help make measurement easy
- Rugged construction for reliable performance

Adjustable flash duration

For most applications the standard flash duration will work well without adjustment. In other applications with higher rpm or larger rotating objects with high surface speeds, an adjustable flash duration is needed. In high speed applications, objects may move during the brief period of a single flash, resulting in a blurred image. By decreasing flash duration, objects have less time to move and the image will appear sharper.

Common Applications for the 820

The Fluke 820 Stroboscope is more than just a tool to measure rotational speed of machinery without physical contact. It is also an excellent diagnostic tool for a wide variety of applications:

- Belt driven machines—HVAC fans, pumps
- Roller bearings, shafts, gear teeth or other machine components
- Clutches and cogwheels
- Foundations—resonance vibrations
- Cable or piping wear or damage
- Mixing and dosage processes

In addition, the stroboscope can be used as a strobe tachometer to measure speed instead of using a laser tachometer. In order to use the stroboscope, the component under measure must be visible, and have an identifying mark that can be used as a point of reference. A strobe tachometer is a useful tool because you can't always get access to the machine shaft to stick a piece of reflective tape to use a laser tachometer or make contact with the moving shaft to use a contact tachometer—using a stroboscope you can "stop" the shaft down to 300 RPM (FPM).

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Use the 820 for:

- Turbines that vary in speed and change speed frequently
- Variable Frequency Drive motors that vary in speed, but do not change frequently
- Find belt rotation speed and look for belt slippage
- Find machine element components – fan blades, pump vanes, compressor screws, and gear teeth.
- RPM measurement and frequency investigation
- Slip measurement



Use the Fluke 820 Stroboscope in a variety of industries:

Electronics/electrical engineering

- Observe the anchor swing from synchronic and asynchronous motors, carbon brush of the collectors and sliding rings. Find mistakes on speakers, record players, magnetic tape recorder, relay, contact rectifiers, power switch, phone selector, home appliances, kitchen equipment, ventilators, turbines, vibrators, counters, speakerphones, sorting-machines, centrifuges, electrical tools and equipment.
- Find errors caused by work process on manufacturing machines—wrappers, cabling machines, isolated machines, wireless printing machines, cutting machines and drill machines.
- Control the synchronization of motors and machines as well as their leakage and tarnish behavior. Check the behavior of motors, machines, and drives for power drain. Identify material stress as well as fatigue by wave motion reverberations at higher machine efficiency.

Machine construction

- Investigate meshing of gears, control of drives, ball bearings, couplings, lever movement, linkages, cylinders, valve clip tongue and valve clip leverage, resonance vibrations, and early detection of fatigue of the material from high load.
- Control the work process on high-speed machines. Check the compliance of rotational parts of motors, machine and manufacturing equipment, and the behavior of couplings, belts and chain-drives at high speeds.
- Observe the work processes of centrifuges, pressure/cut machines, automatic punching, riveting machines, screwing machines, grinding machines, polishing machines and boring machines. Observe the automatic moving processes and play of machines and mechanical equipment that is outside what can be seen by the human eye.

Automotive and motor manufacturing

- Adjust the ignition and the valves. Check the valve lever movement, valve spring vibration, and injection operations in combustion engines. Control of the various work processes in manufacturing of automatic and machines all of kinds.
- Observe the vibration of motors, hangers, transmission shafts, springs, wind generators, and light machines.

Optics manufacturing

- Test camera closures. Control transport of film cameras and projectors. Observe the drive elements, cooling fan, and the return flow of movie projectors. Investigate the work process on lens-grinding machines.
- Perform movement studies seen in the fast movement of objects through film recordings.

Print, paper, and cardboard manufacturing

- Observe the passer marks and control the printing process. Watch multicolor printers in order to assess the print quality relative to the rate.
- Check on package machines, folding box automation, cutting automation and adhesive automation. Control the work process of the punching, printing, and sorting automation. Control the rotary knives, waltz, transport rollers, gears, stores, waves, etc.

Mining

- Observe shiver and swinging filters, transport bands, and centrifuges. Control the generators, drive machines, rock drills and other mechanical equipment.

Shipbuilding, aircraft construction

- Determine the appearance of cavitation bubbles on propellers at experimental models. Control the movement in marine engines, generators, E-machines, and air systems.
- Observe the behavior of propellers and air screws at different rpm (drew behavior and fluid behavior).

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Chemical manufacturing

- Control the mixing and dosing processes. Observe mixers, pumps, regulation systems, transport bands, package machines, dosing and sorting machines, tablet machines, bottle filling machines, closure machines, etc.
- Observe the product in dry centrifuges and air pressure machines, conveying systems, swing filters and crushing plants, etc.

Medical

- Observe the drilling process in medical institutions.
- Set the responsive assets on light pulses of different frequencies (e.g. an epileptic)
- Use in laboratories, research institutions, schools, universities, and technical training facilities
- Observe the work processes for demonstration and experimental purposes. Use as visual evidence for theoretical opinions where visualization of optics are not detectable.

Technical specifications

Mechanical specifications	
Size (HxWxL)	5.71 cm x 6.09 cm x 19.05 cm
	2.25 in x 2.4 in x 7.5 in
Weight	0.24 kg (0.53 lb)
Environmental specifications	
Operating temperature	0 °C to +45 °C
Storage temperature	-10 °C to +50 °C
Operating humidity (without ondensation)	Non-condensing (<10 °C)
	90 % RH (10 °C to 30 °C)
	75 % RH (30 °C to 40 °C)
	45 % RH (40 °C to 50 °C)
Absorption/corrosion	30 °C, 95 % RH, 5 day
	Product functions normally
Operating altitude	2,000 m
Storage altitude	12,000 m
Vibration	MIL-PRF-28800F Class 2
Impact resistance	1 m drop
EMI, RFI, EMC	EN61326-1:2006
Safety compliance	
Agency approvals	CE
	Class III (SELV) Pollution Degree 2
Miscellaneous specifications	
Flash frequency	
Range	30 to 300,000 FPM
	0.5 to 5000 Hz
Accuracy	0.02 %
Resolution	30 to 999 FPM = 0.1
	1000 to 300,000 = 1
	0.5 Hz to 999 Hz = 0.1
	1000 Hz to 5000 Hz = 1
Frequency setting	FPM or Hz
Flash pulse	
Duration	Adjustable in µs or degrees
Delay	Adjustable in µs or degrees
Light	
Color	Approx 6500 K
Emission output	4,800 lx @ 6000 FPM at 30 cm
External trigger	
Method	Connector to externally control trigger
High level	3 V to 32 V
Low level	<1 V
Minimum pulse width	50 µs connection

Ordering information

Fluke-820 Stroboscope

Includes
820 Stroboscope, Protective case, external trigger connector



Fluke. *Keeping your world up and running.*®

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