Monarch International, Inc. was founded in 1977 as a sales and service organization for a diverse range of instrumentation. In 1982, the Monarch Instrument Division was established to manufacture and market the first microprocessor based portable tachometers.

In 1992, Monarch introduced the DataChart™ Paperless Recorder. Today, we offer a wide range of technical capabilities and competitive pricing throughout the DataChart™ product line to include color touch-screens and multi-channel recorders.

The Track-It™ Data Logger line was introduced in 2010. New and innovative models are being added continuously. Monarch Instrument remains committed to innovations and quality in sales, customer service and manufacturing. “Innovation in Instrumentation” is the Monarch design philosophy and in recent years we have introduced state-of-the-art products:

- illumiNova® Fixed Mount Stroboscopes
- Nova-Pro® Stroboscope/Tachometer
- PLS Pocket LED Stroboscope
- Track-It™ Indicating Pressure/Temp Logger
- DataChart™ 6000 Paperless Recorder

Monarch Instrument holds multiple Patented Technologies and Registered Trademarks including Nova-Pro® and illumiNova®. In addition the following trademarks and service marks are also property of Monarch Instrument: Track-It™, PalmStrobe™, DataChart™, The Professional’s Choice™.

Our full service sales force and world-wide distribution network stands ready to answer purchase and product application questions. Please feel free to contact us via our toll free number, website, e-mail or fax. We offer a comprehensive line of precision products and calibration services, all with the convenience of the Internet. Monarch Instrument is a ISO9001:2015 certified facility. Please visit our website to locate a distributor in your area.

www.monarchinstrument.com

Visit our website to see our complete range of products:

- Tachometers
- Stroboscopes
- Speed Sensors
- Frequency Converters
- Vibration Meters
- Temperature Humidity Sensors
- Data Acquisition

Monarch Instrument pursues a policy of continuous product development and improvement. The specifications in this document may therefore be subject to change at any time without notice.

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Visit our website to see our complete range of products:

- Track-It™ Pressure Loggers
- Portable Tachometers
- Panel Tachometers
- Frequency Converters
- Track-It™ Data Loggers
- DataChart™ Paperless Recorders
- Speed Sensors
- Portable Stroboscopes

Proudly distributed by:

Monarch International’s 30,000 square foot facility in Amherst, New Hampshire, USA
The Nova-Pro® is a series of powerful portable visual inspection and speed measurement tools.

We have combined all the features of our hand held LED strobscopes together with a full function laser tachometer to create a compact, ergonomic and extremely powerful tool in one predictive maintenance tool. The strobscopic light source is made up of twelve LED's which are extraordinarily bright yet extremely efficient allowing cool continuous operation and extremely long battery life on a single charge. Continuous operation is also possible with the optional AC adapter.

**Nova-Pro® 100:**
- Designed for simple strobscopic stop motion inspection and RPM measurement applications.
- The integral laser module is an optional item that can be added to make the 100 a full featured non-contact tachometer.

**Nova-Pro® 300:**
- Has all the features of the 100 and adds an additional integral laser module for tachometer mode or strobe trigger mode.
- Adds a high contrast blue LED display with backlight and touch sensitive number pad (for setting flash rates quickly), ultra high intensity LED's for even more light output, memory for up to 10 preset flash rates, input and output jacks for external sensors or pulse repeater output, and NIST calibration certificate.

**Nova-Pro® 500:**
- Has all the features of the 300 and adds an additional standard battery pack, remote laser docking station, phase delay, time delay and virtual slow motion.

**Nova-Pro® UV365 and UV385 Ultraviolet:**
- Is a fully featured Nova-Pro 500, but comes in two different ultraviolet wavelengths for Security Printing, Pharmaceutical Process Manufacturing, and specular inspection of highly reflective textures and transparent poly-films.

### Features
- Stroboscope and tachometer in one tool
- Super bright LED's
- Integral/remote laser module
- Water and dust resistant
- Continuous AC operation available
- TTL compatible input/output (300, 500)
- NIST certificate included (300, 500)

### Typical Uses
- Visual running inspections of: Fan blades, motors, shafts, gears, rollers, webs, belts, sheaves, chains, sprockets and much more without having to shut down your process
- Diagnose alignment issues
- Determine speed of rotating equipment using strobe or built in laser tachometer
- Troubleshoot high speed automation processes by placing them in virtual slow motion
- Print quality inspection
- Textile processing inspection
- Phasor reference for balancing
- Fluid Analysis
- Food & Fruit Inspection

### Ordering Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nova-Pro 100</td>
<td>100 Strobe, standard battery, recharging station with interchangeable wall plugs and manual</td>
<td>6241-010</td>
</tr>
<tr>
<td>Nova-Pro 100 Kit</td>
<td>Same as above with plastic latching carry case</td>
<td>6242-011</td>
</tr>
<tr>
<td>Nova-Pro 300</td>
<td>100 Strobe, laser module, standard battery, recharging station with interchangeable wall plugs, NIST cert and manual</td>
<td>6243-010</td>
</tr>
<tr>
<td>Nova-Pro 300 Kit</td>
<td>Same as above with plastic latching carry case</td>
<td>6244-011</td>
</tr>
<tr>
<td>Nova-Pro 500</td>
<td>100 Strobe, laser module with remote laser dock, (2) standard batteries, recharging station with interchangeable wall plugs, NIST cert and manual</td>
<td>6245-010</td>
</tr>
<tr>
<td>Nova-Pro 500 Kit</td>
<td>Same as above with deluxe die-cut foam lined water tight plastic carry case</td>
<td>6246-011</td>
</tr>
<tr>
<td>Nova-Pro 100 AC</td>
<td>100 Strobe, 115/230 Vac adapter with interchangeable wall plugs and manual</td>
<td>6241-020</td>
</tr>
<tr>
<td>Nova-Pro 100 AC Kit</td>
<td>Same as above with plastic latching carry case</td>
<td>6242-021</td>
</tr>
<tr>
<td>Nova-Pro 300 AC</td>
<td>100 Strobe, laser module, 115/230 Vac adapter with interchangeable wall plugs, NIST cert and manual</td>
<td>6243-020</td>
</tr>
<tr>
<td>Nova-Pro 300 AC Kit</td>
<td>Same as above with plastic latching carry case</td>
<td>6244-021</td>
</tr>
<tr>
<td>Nova-Pro UV/365</td>
<td>UV365 Single, laser module with remote laser dock, standard battery, recharging station with interchangeable wall plugs and manual</td>
<td>6245-030</td>
</tr>
<tr>
<td>Nova-Pro UV/365 Kit</td>
<td>Includes a second battery and deluxe water tight case</td>
<td>6246-031</td>
</tr>
<tr>
<td>Nova-Pro UV/385</td>
<td>UV385 Single, laser module with remote laser dock, standard battery, recharging station with interchangeable wall plugs and manual</td>
<td>6247-030</td>
</tr>
<tr>
<td>Nova-Pro UV/385 Kit</td>
<td>Includes a second battery and deluxe water tight case</td>
<td>6248-031</td>
</tr>
</tbody>
</table>

### Specifications

<table>
<thead>
<tr>
<th>Part No.</th>
<th>100</th>
<th>300</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Range (FPM/RPM)</td>
<td>30 to 999,999</td>
<td>30 to 999,999</td>
<td>30 to 999,999</td>
</tr>
<tr>
<td>Display</td>
<td>6 digit numeric and 5 digit alphanumeric LCD reflective</td>
<td>6 digit numeric and 5 digit alphanumeric LCD with touch keypad. High contrast blue background/white characters with backlight</td>
<td>6 digit numeric and 5 digit alphanumeric LCD with touch keypad. High contrast blue background/white characters with backlight</td>
</tr>
<tr>
<td>Accuracy/Resolution</td>
<td>0.001% of reading or 6 digits to 0.001</td>
<td>0.001% of reading or 6 digits to 0.001</td>
<td>0.001% of reading or 6 digits to 0.001</td>
</tr>
<tr>
<td>Light Source</td>
<td>12 LED Array</td>
<td>12 High Output LED Array</td>
<td>12 High Output LED Array</td>
</tr>
<tr>
<td>Flash Duration</td>
<td>Adjustable to 14 degrees/2.000ms max</td>
<td>Adjustable to 14 degrees/2.000ms max</td>
<td>Adjustable to 14 degrees/2.000ms max</td>
</tr>
<tr>
<td>Light Output</td>
<td>3400 Lux @ 6000 FPM, 12 inches (30.48 cm), 2” duty cycle, Max light output: 24,000 Lux</td>
<td>5000 Lux @ 6000 FPM, 12 inches (30.48 cm), 2” duty cycle, Max light output: 30,000 Lux</td>
<td>5000 Lux @ 6000 FPM, 12 inches (30.48 cm), 2” duty cycle, Max light output: 30,000 Lux</td>
</tr>
<tr>
<td>Color Temperature</td>
<td>approx. 6200°K</td>
<td>approx. 6200°K</td>
<td>approx. 6200°K</td>
</tr>
<tr>
<td>External Triggers in/out</td>
<td>N/A</td>
<td>TTL / 12Vdc Max Input. Provides 3.3 Vdc TTL output</td>
<td>0-999,999 RPM with integral laser (Optional)</td>
</tr>
<tr>
<td>Tachometer Mode</td>
<td>0-999,999 RPM with integral laser (Optional)</td>
<td>0-999,999 RPM with integral laser (Optional)</td>
<td>0-999,999 RPM with integral laser (Optional)</td>
</tr>
<tr>
<td>Programmable Memory</td>
<td>N/A</td>
<td>Yes (10 set points)</td>
<td>Yes (10 set points)</td>
</tr>
<tr>
<td>Internal Phase Shift</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Phase Delay - degrees</td>
<td>-360.0 to 360.0 degrees</td>
<td>-360.0 to 360.0 degrees</td>
<td>-360.0 to 360.0 degrees</td>
</tr>
<tr>
<td>Time Delay - milliseconds</td>
<td>N/A</td>
<td>-50.00 to 5000 milliseconds</td>
<td>-50.00 to 5000 milliseconds</td>
</tr>
<tr>
<td>Virtual RPM</td>
<td>N/A</td>
<td>115/230 Vac 50/60Hz AC adapter with 6 foot (2M) cable and interchangeable outlet adapters (Optional)</td>
<td>115/230 Vac 50/60Hz AC adapter with 6 foot (2M) cable and interchangeable outlet adapters (Optional)</td>
</tr>
<tr>
<td>Power Supply (Battery):</td>
<td>Rechargeable/replaceable UNI313 compliant Standard Li-Ion battery pack with 115/230 50/60Hz recharging station</td>
<td>Rechargeable/replaceable Standard Li-Ion battery pack with 115/230 50/60Hz recharging station</td>
<td>Rechargeable/replaceable Standard Li-Ion battery pack with 115/230 50/60Hz recharging station</td>
</tr>
<tr>
<td>Power Supply (AC):</td>
<td>115/230 Vac 50/60Hz AC adapter with a foot (2M) cable and interchangeable outlet adapters (Optional)</td>
<td>115/230 Vac 50/60Hz AC adapter with a foot (2M) cable and interchangeable outlet adapters (Optional)</td>
<td>115/230 Vac 50/60Hz AC adapter with a foot (2M) cable and interchangeable outlet adapters (Optional)</td>
</tr>
<tr>
<td>Weight</td>
<td>1.4 lbs. (635 grams) with Standard battery</td>
<td>1.4 lbs. (635 grams) with Standard battery</td>
<td>1.4 lbs. (635 grams) with Standard battery</td>
</tr>
<tr>
<td>Size (H x W x D)</td>
<td>9.5 x 3.75 x 5.5 in. (241 x 9.5 x 149mm)</td>
<td>9.5 x 3.75 x 5.5 in. (241 x 9.5 x 149mm)</td>
<td>9.5 x 3.75 x 5.5 in. (241 x 9.5 x 149mm)</td>
</tr>
<tr>
<td>Housing material/finish</td>
<td>ABS/IP54</td>
<td>ABS/IP54</td>
<td>ABS/IP54</td>
</tr>
</tbody>
</table>

**Remote Laser Dock:**
- Remove the laser module from the Nova-Pro and insert it into the remote laser dock with 1/4 x 20 tripod mount. Plug the cable into the external input jack (300, 500 models) and make measurements in hard to reach or unsafe areas. (Tripod sold separately)

**AC Power Adapter:**
- The 115/230 AC power adapter allows for continuous operation. Included with certain models or may be ordered separately.

**Battery Recharging Station:**

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Contact us: 800-999-3390
Fax: 603-886-3300
www.monarchinstrument.com
sales@monarchinstrument.com
# Nova-Strobe
## LED Stroboscopes

**Features**
- Bright, uniform light pattern
- Diagnostic inspection and RPM checks
- Digital LCD backlit display (DBL, PBL)
- Tripod mounting bushing (¼”-20) in handle
- NIST certificate included
- Compact size

**Continuous, 24/7 operation (PBL)**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>BBL Basic</th>
<th>DBL Deluxe</th>
<th>PBL Phaser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Range (FPK/FPM)</td>
<td>30-500,000</td>
<td>30-500,000</td>
<td>30-500,000</td>
</tr>
<tr>
<td>Display</td>
<td>6 Digit Numeric and 5 Digit Alphanumeric LCD</td>
<td>6 Digit Numeric and 5 Digit Alphanumeric LCD</td>
<td>6 Digit Numeric and 5 Digit Alphanumeric LCD</td>
</tr>
<tr>
<td>Accuracy/Resolution</td>
<td>±0.004% of setting or ± least significant digit ±0.01 FPM</td>
<td>±0.004% of setting or ± least significant digit ±0.01 FPM</td>
<td>±0.004% of setting or ± least significant digit ±0.01 FPM</td>
</tr>
<tr>
<td>Light Output</td>
<td>4200 Lux @ 6000 FPM, 12 inch (30.67 cm), 2° duty cycle</td>
<td>Max light output: 27,000 Lux</td>
<td>2000 Lux @ 6000 FPM 12° (30.48 cm) from lens 2° duty cycle Max light output: 8000 Lux</td>
</tr>
<tr>
<td>Flash Duration</td>
<td>Adjustable to 14 degrees/500us max</td>
<td>12 LED Array Approx. 6200°K</td>
<td>8-8000 pulses @ 1800 FPM</td>
</tr>
<tr>
<td>Light Source</td>
<td>N/A</td>
<td>TTL 445nm Macropulse, Proxiform 2.5 Vdc TTL output</td>
<td>N/A</td>
</tr>
<tr>
<td>Color Temperature</td>
<td>N/A</td>
<td>N/A</td>
<td>approx. 6200°K</td>
</tr>
<tr>
<td>Tachometer Mode</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Programmable Memory</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Impulse Phase Shift</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Phase Delay – Degrees</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Time-Delay – milliseconds</td>
<td>0 to 1000 milliseconds</td>
<td>0 to 1000 milliseconds</td>
<td>0-20 VRPM</td>
</tr>
<tr>
<td>Power Supply</td>
<td>8-10 hours typical @ 1800 FPM</td>
<td>8-10 hours typical @ 1800 FPM</td>
<td>8-10 hours typical @ 1800 FPM</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Internal Ni-MH rechargeable batteries with 115/230 50/60Hz charger</td>
<td>Internal Ni-MH rechargeable batteries or continuous using 115/230 50/60Hz VAC power supply/recharger</td>
<td>Internal Ni-MH rechargeable batteries or continuous using 115/230 50/60Hz VAC power supply/recharger</td>
</tr>
<tr>
<td>Weight</td>
<td>3 lbs. (1.4 kg)</td>
<td>3 lbs. (1.4 kg)</td>
<td>3 lbs. (1.4 kg)</td>
</tr>
<tr>
<td>Size (L x W x H)</td>
<td>Body: “5” x 3.80” x 3.50” (129 x 99 x 89 mm); Reflector Housing: 4 ½” (112 mm) dia.; Handle: 2 ½ ” (64 mm long)</td>
<td>Body: “5” x 3.80” x 3.50” (129 x 99 x 89 mm); Reflector Housing: 4 ½” (112 mm) dia.; Handle: 2 ½ ” (64 mm long)</td>
<td>Body: “5” x 3.80” x 3.50” (129 x 99 x 89 mm); Reflector Housing: 4 ½” (112 mm) dia.; Handle: 2 ½ ” (64 mm long)</td>
</tr>
</tbody>
</table>

**Accessories (compatible with all Nova-Strobes)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Remote Optical Laser Sensor</td>
<td>6280-030</td>
</tr>
<tr>
<td>2. Splash Proof Cover</td>
<td>6280-040</td>
</tr>
<tr>
<td>3. Protective Rubber Cover</td>
<td>6280-049</td>
</tr>
<tr>
<td>4. Reflective Tape, 2” wide x 22’</td>
<td>6280-070</td>
</tr>
<tr>
<td>5. Pulse input/output cable (RNC)</td>
<td>6280-017</td>
</tr>
<tr>
<td>6. Standard Latching Carry Case</td>
<td>6280-040</td>
</tr>
<tr>
<td>7. Deluxe Water Tight Carry Case</td>
<td>6280-049</td>
</tr>
</tbody>
</table>

---

# PLS Pocket LED Stroboscope

**Features**
- Energy efficient with long battery life
- Extremely bright, uniform light
- Quiet/Cool operation
- No lamp replacements
- Diagnostic inspection and RPM checks
- Intuitive one hand operation

**Specifications**

| Display: | LCD display with 6 number 0.506 inch (12.8mm) high digits and 5 alphanumerics (0.260inch 11.15mm) high digits |
| Indicator: | Battery level, On Target, Select, TACH, and EXT Icons |
| Memory: | Last setting before power down is remembered and restored on reset power-up | 5 user savable memory locations |
| Flash Duration: | Adjustable 0.5 to 2500 microseconds or 0.1 to 10 degrees of rotation (auto adjusts with flash rate) |
| Power: | Battery powered, internal Li-ion rechargeable batteries, 3.6Vdc |
| Light Source: | 7 LED Array |
| Light Output: | 2000 Lux @ 6000 FPM 12° (30.48 cm) from lens 2° duty cycle Max light output: 8000 Lux |
| Color Temp: | approx. 6200°K |
| Run Time: | 8-10 hours typical @ 1800 FPM, and 2° duty cycle with fully charged batteries |
| Charge Time: | 4-5 hours typical with supplied charger |
| Weight: | 0.6 lbs. (0.27kg) including batteries |
| Dimensions: | 7.75” x 2.75” x 2.3” (197 x 70 x 58 mm) |

**Ordering Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS</td>
<td>Pocket LED Stroboscope, universal 115/230 VAC recharge with interchangeable wall plugs, and manual</td>
<td>6235-010</td>
</tr>
<tr>
<td>PLS KIT</td>
<td>Same as above with die cut foam-lined latching carry case</td>
<td>6235-011</td>
</tr>
<tr>
<td>PLS KIT Plus</td>
<td>Same as PLS KIT above. Also includes ROL-P Remote Optical Sensor for triggering flash or for use as a laser device</td>
<td>6235-012</td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective cover with belt hook</td>
<td>6280-073</td>
</tr>
<tr>
<td>Lithium Battery Charger</td>
<td>115/230 VAC recharge with interchangeable wall plugs</td>
</tr>
<tr>
<td>Ni-MH Battery Pack</td>
<td>6280-074</td>
</tr>
<tr>
<td>RS-O</td>
<td>Remote Optical Sensor with 3/8” phone plug connector, 8 foot cable and 12 inches of reflective tape</td>
</tr>
<tr>
<td>RS-1</td>
<td>Remote Optical Sensor with 3/8” phone plug connector, 8 foot cable and 12 inches of reflective tape</td>
</tr>
<tr>
<td>RS-5</td>
<td>1.5 foot extension, 3” foil roll 1/2” wide</td>
</tr>
<tr>
<td>CC-11</td>
<td>Latching carry case for PLS</td>
</tr>
<tr>
<td>Tripod</td>
<td>Miniature tripod with 2/0” x 20 stub</td>
</tr>
</tbody>
</table>
Features (all models)

- Internal rechargeable batteries or AC powered models
- Lightweight (Less than 2.0 pounds) for easy handling
- Continuous cool operation
- Tripod mountable

Nova Strobe DAX and DBX also add:

- NIST Traceable Calibration Certificate
- Internal phase shifting for easy reference target viewing
- Tach mode, speed measurement up to 250,000 RPM
- Power for optional sensors
- Pulse repeat output

The Phaser-Strobe PBX incorporates the unique design features of the Nova-Strobe DBX with an increased operating range of 30 to 50,000 flashes per minute, as well as external phase shifting. The unique digital adjustment knob can select the decade for adjustments so coarse and fine adjustments of flash rates are made quickly and with significantly better resolution than competitive units. The memory feature of the Phaser-Strobe PBX allows nine flash rates to be stored - displayed in flashes per minute or flashes per second. Phaser-Strobe PBX operates with internal rechargeable batteries or continuously from AC line power with the power supply/recharger.

Features:

- Phase Shift adjustable as phase angle or time
- Virtual RPM mode provides slow motion viewing for high speed events
- Store and recall nine memory settings
- TTL compatible input/output jacks
- NIST traceable certificate included

Specifications

- Flash Range: 30-50,000 FPM (flashes/minute) 0.5-83.3 FPS (flashes/sec) (Hz)
- Accuracy: ±0.004% of setting ± least significant digit
- Digital Adjustment Knob: 30 deliters per revolution and blinking decade selection
- Flash Rate Resolution: 0.01 to 1.0 FPM (menu selectable)
- Operating Time: 2 hours typical @ 1800 FPM or continuous AC power
- Phase Delay: 0.1 to 359.9 degrees
- Time Delay: 0.1 to 1000 micros.
- Voltage RPM (Slow motion): 0.200 VPM
- Flash Energy (Typical): 230 volts up to 3450 FPM
- Flash Duration (Typical): 10-25 micros (auto adjust)
- Average Power: 1.1W @ 3000 FPM; >13W @ 3450 FPM
- Tachometer Mode: 5-25,000 RPM from external trigger
- External Input: Input pulse 0.5-150 micros; TTL to 24V max (1/8" phone plug)
- Trigger Output/Remote Sync: 3.3V TTL compatible 40 micros pulse positive/negative
- Power: Internal rechargeable NIMH batteries with AC power supply/recharger
- Weight: 1.9 lbs (0.85 kg) including batteries

Ordering Information

Item Description Part No.
PBX 115/230 Strobe with PSI pbx115/230 power supply/recharger, manual and NIST certificate 1021N20
PBX 115/230 Kit Same as above with deluxe water tight foam lined carry case 1021N02

The VBX Vibrastrobe is uniquely designed to provide precise, instantaneous synchronization to a number of data collectors and FFT analyzers triggered by an accelerometer. Built for portable applications, the VBX is the perfect lightweight phase analysis tool. VBX allows for the measurement of phase without stopping the machinery to install reflective tape. Phase analysis is quick and accurate using the filter bandwidth selector and the relative phase adjustment. Unique “Tracking Filter” maintains phase lock to input pulse. VBX can power and be triggered by accelerometers or without data collectors.

Features:

- Compatible with CSI and SKF analyzers
- Tracking filter maintains phase lock
- Direct triggering from accelerometers
- NIST traceable certificate included

Specifications

- Flash Range: 30-50,000 FPM (flashes/minute) 0.5-83.3 FPS (flashes/sec) (Hz)
- Accuracy: ±0.004% of setting ± least significant digit
- Digital Adjustment Knob: 30 deliters per revolution and blinking decade selection
- Flash Rate Resolution: 0.01 to 1.0 FPM (menu selectable)
- Operating Time: 2 hours typical @ 1800 FPM or continuous AC power
- Phase Delay: 0.1 to 359.9 degrees
- Tracking Filter: Selectable Wide and Narrow Bandwidths. Filter may not lock below 100 FPM
- External Input: Input pulse 0.5-150 micros; TTL to 24V max (1/8" phone plug)
- Trigger Output/Remote Sync: 3.3V TTL compatible 40 micros pulse positive/negative
- Power: Internal rechargeable NIMH batteries with AC power supply/recharger
- Weight: 1.9 lbs (0.85 kg) including batteries

Ordering Information

Please visit www.monarchinstrument.com or contact us directly for complete part number and pricing information.
Palm Strobe x offers excellent brightness, exceptional features, rugged construction and extra long battery life. Unique one-touch joystick-type button allows single hand operation for fast fractional RPM tuning. Select mode of operation for internal tuning, external TTL pulse input, tachometer and X2 functions. Eight memory positions provide rapid recall of user defined frequencies.

The Palm Strobe x can be ordered in various configurations to fit the demand of your application.

Ordering Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm Strobe x</td>
<td>Battery pack, PSC-2U 115/230 Vac recharger, NIST certificate and manual</td>
<td>6205-050</td>
</tr>
<tr>
<td>Palm Strobe x</td>
<td>Battery pack, PSC-2U 115/230 Vac recharger, NIST certificate, manual and holster</td>
<td>6205-051</td>
</tr>
<tr>
<td>Palm Strobe x Kit</td>
<td>Battery pack, PSC-2U 115/230 Vac recharger, NIST certificate, spare lamp, manual and latching case</td>
<td>6205-052</td>
</tr>
<tr>
<td>Palm Strobe x Deluxe Kit</td>
<td>Battery pack, PSC-2U 115/230 Vac recharger, NIST certificate, spare lamp, manual and latching case</td>
<td>6205-053</td>
</tr>
<tr>
<td>Accessories</td>
<td>TTL pulse input cable, 6 feet (1.82m) - 1/8” stereo plug to BNC male connector</td>
<td>6280-052</td>
</tr>
<tr>
<td>PS Output Cable</td>
<td>TPL pulse output cable, 5 feet (1.52m) - 1/8” stereo plug to BNC male connector</td>
<td>6280-037</td>
</tr>
<tr>
<td>PS Holster</td>
<td>Holster with belt loop and pouch</td>
<td>6280-043</td>
</tr>
<tr>
<td>Holster Kit</td>
<td>Protective rubber cover for Palm Strobe x</td>
<td>6280-044</td>
</tr>
<tr>
<td>Quick Change Battery Pack</td>
<td>PS Holster with belt loop and pouch</td>
<td></td>
</tr>
<tr>
<td>Protective Rubber Cover</td>
<td>Holster with belt loop and pouch</td>
<td></td>
</tr>
<tr>
<td>Rechargeable Battery Pack</td>
<td>PS Holster with belt loop and pouch</td>
<td></td>
</tr>
</tbody>
</table>

Additional Accessories

- Quick Change Battery Pack
- Protective Rubber Cover
- Holster
- Rechargeable Battery Pack
- TPL pulse input cable, 6 feet (1.82m) - 1/8” stereo plug to BNC male connector
- TPL pulse output cable, 5 feet (1.52m) - 1/8” stereo plug to BNC male connector (CA-4044-4)
- Holster with belt loop and pouch
- Protective rubber cover for Palm Strobe x

Features

- Patented Plug in Battery Pack
- Easy one hand operation
- Lightweight
- Flash rates to 12,500 FPM
- Taco meter mode from Self Powered Sensors
- TTL compatible input/output (3.5mm phone plug)
- NIST Certificate included

Specifications

- Internal Mode Range: 100 to 12,500 FPM (Flashes per minute)
- Light Power: 7.9 watts @ 600 FPM, 150 pulses up to 3100 FPM
- Flash Lamp Life: 100 million flashes typical
- Flash Duration: 10 - 30 pulse typical
- Display: 6 digit alphanumeric backlit LCD display
- Flash Rate Resolution: ±0.5 FPM
- Flash Rate Accuracy: Greater of ±0.03% of reading or ±0.5 FPM
- Tachometer Mode: 5 to 250,000 RPM
- External Input: 0 to 5Vdc (12 Vdc max.) TTL compatible, positive edge triggered
- Output Pulser: 0 to 5 Vdc typical - 300µsec positive pulse (2.5µm) 1/8” phone plug
- Run Time: 2 hours typical @1800 FPM - ½ Hour typical @ 6000 FPM
- Memory: 8 programmable flash rates and last flash rate at power down
- Adjustment: Four quadrant tuner button with blinking decade select for flash rate up and down, multiply by 2 and divide by 2
- Modes: Internal, External, Tachometer, Preset, x 1 or x 2, locked on
- Battery Power: Removable 6Vdc rechargeable NiMH battery pack
- Recharger: 100-240 Vac, 50/60Hz, includes 4 interchangeable adapters
- Weight: 1.2 lbs. (0.55 kg) including battery
- Strobe Dimensions: 6.7” x 9.3” x 3.3” (17 x 23 x 8 cm)

Inspection Applications

- Continuous cool operation
- Rugged fan cooled aluminum housing
- Tripod mounting bushing
- Dependable and versatile
- 115 or 230Vac input power

Contact us:

- NIST Certificate included
- TTL compatible input/output (3.5mm phone plug)
- Easy one hand operation
- Patented Plug in Battery Pack
- Quick Change Battery Pack
- Protective Rubber Cover
- Holster

Specifications

- Range: 1 - 5000 FPM
- Flash duration: 10-100 µsecs
- 390-1150 FPM
- Light Source: Xenon flash tube
- Light output: 10 watts
- Color Temp: 6600 Lux @ 600 FPM, 12 inches, 50µsec pulse width, Max Light output: 32,000 Lux
- Trigger to Flash Delay: 5 µsecs
- Operating Temp: 32° to 104°F (0° to 40°C) max 80% Humidity
- External Trigger Input: TTL (5 Vdc Max)
- Input Power: 115 or 230 Vac 50/60Hz
- Size/Weight: 5.75” x 4.36” x 7.0” H / 1.5 lbs.

Frequency Controller with LCD

- Range: (ppm/Hz): 30-20,000 pulses per minute / 0.5 - 333 Hz
- Display: 6 digit numeric and 5 digit alphanumeric LCD with backlight
- Accuracy/Resolution: 0.002% of setting or ±1 least significant digit / 0.01 PPM
- Input/Output: Input: TTL, [24Vdc max], 1/8” (3.5mm) phone plug connector
- Output: TTL (3Vdc), 1/8” (3.5mm) phone plug connector
- Trigger to Flash Delay: 1 µsec
- External Input: TTL (5Vdc Max)
- Input Power: 115 or 230 Vac 50/60Hz
- Size/Weight: 5.4” x 3.5” x 1.5625” / 0.25 lbs

Features

- Patented Plug in Battery Pack
- Easy one hand operation
- Lightweight
- Flash rates to 12,500 FPM
- Taco meter mode from Self Powered Sensors
- TTL compatible input/output (3.5mm phone plug)
- NIST Certificate included

Contact us:

- Fax: 603-886-886
- Ph: 800-999-3390

Machine Vision Stroboscopes are designed for fixed installation in any application requiring continuous stroboscopic visual inspection. The MVS is available with xenon or LED light source and both have adjustable pulse width for optimized target illumination. Connect your existing trigger signal or the optional Frequency Controller with LCD. Connect multiple units together using the MVS distribution panel for applications requiring wide illumination area. Use the optional Audio Interface Box and Microphone to create stunning audio visual effects.
The illumiNova® fixed mount LED stroboscopic inspection systems are designed for continuous use in high speed applications requiring crisp, clear, stop motion quality inspection. The extraordinarily bright LED’s provide an ultra uniform 6500K white spectrum light and are available in 12 inch aperture openings between 1 to 8 feet in width. There is also a compact 6” Nova™ model. Three different lens options ensures you will have light coverage for any job. The powerful on board intuitive digital controller allows the user to quickly set flash rates, flash duration, brightness levels and all other advanced features. Flash rates can also be triggered remotely using machine mounted sensors. The illumiNova®'s on board controller makes setup & use simple and intuitive. The easy to read inverse LCD display is viewable even in high ambient light areas. Flash rates can be quickly entered using the rotary dial, touch screen keypad, or Remote Controller.

### Controls are designed in

Based on our incredibly popular Nova-Pro® series of portable inspection stroboscopes, illumiNova’s on board controller makes setup & use simple and intuitive. The easy to read inverse LCD display is viewable even in high ambient light areas. Flash rates can be quickly entered using the rotary dial, touch screen keypad, or Remote Controller.

Remote Controller

The optional Remote Controller allows you to be up to 300 feet away in a safe location while an overhead or mid-stream strobe is working in position. The same autonomous remote controller can be used on any illumiNova® throughout your production facility.

**We specialize in unique strobe technologies**

- High speed Material Handling
- Machine Vision lighting & synchronization
- Non-contact speed and motion analysis
- High-speed measurement systems
- Laminated film inspections
- Metallized coatings and finishing
- Textiles and non-woven manufacturing
- Life Sciences and luminescence
- Pharmaceutical Process Manufacturing
- Pulp & Paper production
- PET and Polysphere container inspection
- Flexography web and print inspections
- Flexible packaging inspection technologies
- Fluorescent tags and security printing
- Slitting / Rewinding / Converters

**Flexible Mounting Options (RO-20® compatible)**

The illumiNova® housing has an integral RO-20® compatible T-slot framing system built into three sides of its frame. Use the included mounting brackets or select from a wide range of RO-20® industrial mounting hardware that is readily available. This is practical for our narrow width models by setting up quick-mount utility frames allowing them to double-duty at multiple inspection points along the production line.

**Flexible Mounting Options (RO-20® compatible)**

illumiNova® Models from 6 inches to 96 inches with three different lens options and light sources.

---

**Spot, Flood and Wide lens**

**Engineered Lighting and Lens Options**

Monarch Instrument uses high-intensity white LEDs in clusters of three and then pairs them with your choice of three lenses for the desired effect. We use optical grade polycarbonate acrylic materials to collimate the hundreds of light angles into a controlled illuminating beam that is perfect for your target area. For the tightest beam focus use Spot lenses, and for smoother diffused lighting that covers a wider illumination area, use our Flood or Wide directional lenses. UV and IR units use integral domed or flat LED’s with no lens options.

Our LED light clusters have been placed in the optimum position to provide an extremely uniform swath of light, free from hot spots or drop-offs, whether you choose a Spot, Flood, or Wide lens array. Every array is designed and engineered for long-term reliability in demanding industrial environments.

**illumiNova®**

<table>
<thead>
<tr>
<th>Model #</th>
<th>LUX</th>
<th>LUDD</th>
<th>WIDE LUX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 50</td>
<td>3700</td>
<td>1465</td>
<td>1627</td>
</tr>
<tr>
<td>Model 100</td>
<td>7200</td>
<td>3480</td>
<td>3300</td>
</tr>
<tr>
<td>Model 200</td>
<td>8150</td>
<td>3760</td>
<td>5690</td>
</tr>
<tr>
<td>Model 300</td>
<td>9150</td>
<td>3915</td>
<td>5810</td>
</tr>
<tr>
<td>Model 400</td>
<td>8510</td>
<td>3810</td>
<td>7380</td>
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<tr>
<td>Model 500</td>
<td>8570</td>
<td>3905</td>
<td>7550</td>
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<tr>
<td>Model 600</td>
<td>8640</td>
<td>3960</td>
<td>7920</td>
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<tr>
<td>Model 800</td>
<td>8660</td>
<td>4030</td>
<td>7900</td>
</tr>
</tbody>
</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Model #</th>
<th>Lens Style</th>
<th>Programming Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 50</td>
<td>Spot Lens</td>
<td>Programming Cable</td>
</tr>
<tr>
<td>Model 100</td>
<td>Flood Lens</td>
<td>Programming Cable</td>
</tr>
<tr>
<td>Model 200</td>
<td>Wide Lens</td>
<td>Programming Cable</td>
</tr>
<tr>
<td>Model 300</td>
<td>Bluetooth</td>
<td>Programming Cable</td>
</tr>
</tbody>
</table>

**illumiNova® 6” STROBOSCOPE with fully featured controller and input/output connectivity**

Order with your choice of motion sensors.

---

**For a complete guide to the illumiNovaLux Series visit our monarchinstrument.com website or call us!**
The Pocket Laser Tach 200 (PLT200) is a digital, battery-powered portable optical tachometer, which operates up to 25 feet (8 meters) from a reflective target using a class 2 laser light source. The ergonomic design allows safe, direct line-of-sight viewing of both the target and the display at the same time, while providing a non-slip rubber surface for single hand operation.

**Multifunction Tool**

The PLT200 is a 12 function Tachometer/Rate meter, Totalizer/Counter and Timer ( stopwatch), which is programmable in both imperial and Metric rates. It includes two phone plug connectors for our optional Remote Contact Assembly (RCA) or remote sensors. The PLT200 also has a TTL compatible pulse output to trigger devices like vibration data collectors or stroboscopes. The kit is supplied complete with a Remote Contact Assembly including concave and convex tips and a 10 cm linear speed wheel all in a setting carrying case. Sensors and input/output cable are optional.

**Features**

- Contact or Non-Contact modes
- View display and target simultaneously
- Lightweight
- Operates up to 25 feet from target
- Use remote sensors
- TTL input/output (3.5mm phone plug)

**Ordering Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLT200 Tachometer, NIST Cert., batteries, 12 inches of T-5 tape</td>
<td>6125-011</td>
<td>6125-015</td>
</tr>
<tr>
<td>PLT200 Kit, Tachometer, NIST Cert., batteries, latching carry case, RCA with tips, linear speed wheel, 6 foot roll of T-5 tape</td>
<td>6125-011</td>
<td></td>
</tr>
</tbody>
</table>

**Pocket Tachometer**

The Pocket Tach 99 (PT99) is a digital, battery-powered portable non-contact optical tachometer, which operates up to 36 inches from a reflective target using a bright red LED light source. The ergonomic design allows safe, direct line-of-sight viewing of both the rotating target and the display at the same time, while providing a non-slip rubber surface for single hand operation. The PT99 is the value leader of the world-class Pocket Tach Series from Monarch.

**Features**

- 36 inch operating distance
- One hand operation
- LED light source
- Simple operation

**Ordering Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT99</td>
<td>Tachometer with 12 inches of T-5 tape, batteries</td>
<td>5109.030</td>
</tr>
</tbody>
</table>
The F2A1X Frequency to Analog Converter module converts a frequency input signal into a proportional analog voltage (0-5Vdc) or current (4-20mA) output. The input signal is electrically isolated from input signal and input power source effectively eliminating troublesome ground loops. The input signal can be supplied from a Monarch sensor (measuring RPM for example) or any source of digital signal not exceeding 12 volts. The F2A1X is factory preprogrammed with the full scale output and input scale factor of your choice. These settings are also user configurable with the optional USB programming cable and free downloadable PM Remote Software. PM Remote Software also displays data in real-time. The F2A1X requires 12-24Vdc input power.

The F2A3X Frequency to Analog converter is a DIN rail module that converts a frequency input signal into a proportional analog voltage (0-5Vdc) or current (4-20mA) output. The output signal is electrically isolated from input signal and input power source effectively eliminating troublesome ground loops. The input signal can be supplied from a Monarch sensor (measuring RPM for example) or any source of digital signal not exceeding 12 volts. The F2A3X is completely user configurable using the free downloadable PM Remote Software (see full features on page 16).

Specifications

F2A1X

- Proportional to 0 to 200,000 GPH (Gallons Per Hour)
- Full Scale Output 1-999,990 RPM range (0.083 to 250kHz)
- Input Mode
  - Laser
  - Optical
  - Infrared
- Software selectable up to 244 times/sec dependent on input frequency
- Memory
  - Maximum and minimum recall via PC software
- Dimensions
  - L x H x W = 80 x 40 x 28mm (3.2 x 1.6 x 1.2”) excluding mounting wings
- Environmental
  - Indoor use only, installation category II per IEC 664
  - Temperature: -10° to 50°C operating per IEC 61010-1
  - Humidity: 80% max for temps up to 31°C, decreasing linearly to 50% RH at 40°C
- Electrical Safety
  - Meets EN61010-1:2001, EC low voltage directive 2006/95/EC

Ordering Information

- Configure Model # here:
  - F2A1X

Features

- Economically priced
- Rugged, compact and lightweight
- Electrically isolated input/output
- 5 to 600,000 RPM range (0.1 to 10kHz)
- Compatible with most speed sensors (TTL)
- 12 to 24 Vdc input power

- User configurable*
- View real-time data on PC*
- 4-20mA or 0-5Vdc scalable output
- 5 Vdc or 10 Vdc sensor supply (Jumper selectable).

*Requires optional USB programming cable and free downloadable PM Remote Software (see page 16)

Recommended Sensors (see pages 17-19)

- Optical - ROS-W
- Infrared - IRS-W
- Laser - ROLS-W

Specifications

F2A3X

- Standard DIN rail mounting
- Ethernet communications available
- 5 to 999,990 RPM range [0.083 to 250kHz]
- Compatible with most speed sensors (TTL)
- 12 to 24 Vdc input power
- Alarm set point with optional relay output

Ordering Information

- Configure Model # here:
  - F2A3X

Features

- Pulser repeater output
- User configurable
- View real-time data on PC
- 4-20mA or 0-5Vdc scalable output
- 10 Vdc or 5Vdc sensor excitation

Recommended Sensors (see pages 17-19)

- Optical - ROS-W
- Laser - ROLS-W
- Magnetic - MT-190W

PM Remote Software

PM Remote Software is completely user configurable with free downloadable PM Remote Software (see page 16 for details).
PM Remote Software is a free downloadable Windows™ based software application that allows users to quickly and easily customize the configuration of the ACT-1B, ACT-3X, F2A1X and F2A3X. Set the mode of operation to RPM, RPS or Frequency and select the input scale (pulses per revolution). Real-time data can be displayed directly on the PC along with Min and Max values. Decimal places and display update rate are user configurable.

Features
- Allows quick set up of ACT-1B, ACT-3X, F2A1X and F2A3X
- Display live data remotely on PC
- Unit configurations can be saved for reloading in the future.

ROS (Remote Optical Sensor): Threaded stainless steel remote optical sensors have a visible red LED light source and green LED ‘On Target’ indicator. Performs over a wide speed range and operating envelope.

Common usage: Wide range of general purpose applications in relatively clean environments.

Specifications
- Operating Distance: 3 feet (1 m) and 45°
- Operating Distance: 5 feet (1.5 m) offset from target
- Speed Range: 1,250,000 RPM
- Operating Temperature: -14° to 158°F
- Power Input: 3.3 to 15Vdc @ 45mA
- Output Signal: TTL same as source
- Standard Cable: 6 feet (2.4m)
- Dimensions: 2.9” (L) x 0.625” diameter (73 x 65mm)

Ordering Information
- ROS-W: Sensor with 8 ft. cable with tinned leads, mounting bracket and 12” of T-5 tape
- ROS-P: Sensor with 8 ft. cable, 1/8” phone plug, mounting bracket and 12” of T-5 tape
- ROS-P-25: Sensor with 25 ft. cable, 1/8” phone plug, mounting bracket and 12” of T-5 tape

ROS-HT (Remote Optical Sensor, High Temp): Threaded stainless steel remote optical sensor with visible incandescent white light source. Ideal for automotive and truck cooling system testing up to 257°F (125°C).

Common usage: Automotive and heavy truck cooling fan speeds.

Specifications
- Operating Distance: 2 feet (0.61m) and 45° offset from target
- Speed Range: 1,000,000 RPM
- Operating Temperature: -25° to 257°F
- Power Input: 6-24Vdc, 40mA
- Output Signal: TTL same as source
- Standard Cable: 25 feet (7.6m)
- Dimensions: 2.9” (L) x 0.625” diameter (73 x 65mm)

Ordering Information
- ROS-HT-W-25: Sensor with 25 ft. cable with tinned leads, mounting bracket and 12” of T-5 tape

ROLS (Remote Optical Laser Sensor): Threaded stainless steel remote optical laser sensors have a visible red laser light source and green LED ‘On Target’ indicator. Performs over a wide speed range and operating envelope.

Common usage: Wide range of applications where distance to target is large.

Specifications
- Operating Distance: Up to 25 feet (7.62m) and 70° offset from target
- Speed Range: 1,250,000 RPM
- Operating Temperature: -14° to 158°F
- Power Input: 3.3 to 15Vdc, 15mA
- Output Signal: TTL same as source
- Standard Cable: 6 feet (2.4m)
- Dimensions: 3.12” (L) x 0.71” (W) x 0.94” (D)

Ordering Information
- ROLS-W: Sensor with 8 ft. cable with tinned leads, mounting bracket and 12’’ of T-5 tape
- ROLS-P: Sensor with 8 ft. cable, 1/8” phone plug, mounting bracket and 12’’ of T-5 tape
- ROLS-P-25: As above, with 25’’ cable

PM Remote Programming Cable

USB Programming Cable must be purchased separately.

*Only one communications option may be selected per unit.
**USB Programming Cable must be purchased separately.
M-190 (Magnetic Sensor): Most popular sensor for use with 60 tooth 20 pitch gears. Sensor mounts within 0.005 inches (0.127mm) of a minimum 0.1 inch (2.5mm) target. Requires no power from the display module and self-generates an AC signal.

MT-190 (Magnetic Sensor with Amplifier): Extends operating gap to 0.25 inches (6.35mm) from the target. Frequently used on gears as the M-190, but can also sense both heads or shaft keys and provides a TTL output signal that is equal to the source voltage.

Common usage: Ferrous metal targets including gear teeth bolt heads or shaft keys for on-line systems.

GE-200HP: Ideal sensor for detecting gasoline engine RPM. Up to 12 inch (304mm) working distance from ignition coil or magneto.

Common usage: 2-cycle and 4-cycle gasoline/petrol engines.

PS-12: A three wire threaded IP67 metal sensor outputs an open collector PNP pulse. Operates at a 0.15 inch (4mm) gap with a .45 inch (12mm) target. Includes red LED on target indicator.

Common usage: Permanent installation in harsh industrial environments. Online vibration data collectors.
To purchase, call 1-800-330-7860 or contact us:
sales@monarchinstrument.com
500 W. 5th Street #1, Clearwater, FL 33765
Ph: 800-399-3390
Fax: 603-886-3300
www.monarchinstrument.com

The unique Self-Powered Sensor (SPSR) provides a square wave pulse output from any of four input sensors: ROLS-P, ROS-P, IRS-P or MT-190P (See pages 17-18 for details). The TTL compatible pulse output is switch selectable as either positive going 5-V pulse or negative going 5-V pulses provided on a BNC connector. Internal rechargeable batteries provide 40 hours of operation between charges. For continuous operation, all SPSR configurations can be powered by the included 115/230Vac universal recharge/power supply with interchangeable wall plugs. Self-powered sensors are a critical element for providing one TTL pulse per revolution for vibration analyzers, spectrum analyzers, stroboscopes, data acquisition equipment, tachometers, balances, waveform analyzers and magnetic tape recorders.

Contact us:
sales@monarchinstrument.com
500 W. 5th Street #1, Clearwater, FL 33765
Ph: 800-399-3390
Fax: 603-886-3300
www.monarchinstrument.com

Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Range (RPM)</th>
<th>Output Signal</th>
<th>Pulse Width</th>
<th>Output Connector</th>
<th>Power</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Same as sensor</td>
<td>TTL 0-V or 5-V (user selectable polarity)</td>
<td>DigiTech: Determined by size of target and rotational speed</td>
<td>BNC connector</td>
<td>Rechargeable Ni-MH batteries, 40 hours or continuous with 115/230Vac supply/recharger with interchangeable wall plugs</td>
<td></td>
</tr>
</tbody>
</table>

The Smart Laser Sensor (SLS) is an internal battery-powered optical speed sensor utilizing a visible Class 3R Laser for a TTL pulse output. Operating range up to 65 feet (19.8 m) with reflective tape and up to 3 feet (1 m) from contrasting color targets, keyways, holes or blades. Features

• “Smart” auto gain provides best performance in picking up target reflections
• TTL pulse output signal inverter switch
• Manual sensitivity knob provides dynamic fine tuning of sensor response
• Signal/Pulse/RS232 Output DIN connector port
• External DC power/recharger port for continuous operation (24/7)

The DataChart™ 1250 is a feature rich data acquisition system offering 2 universally configurable inputs for measuring DC voltage, DC current, thermocouples and RTD’s as well as frequency and pulse inputs. 4 internal alarm set points, 2 alarm relay outputs and 1 digital control input are all standard. A maximum sample storage rate of 100 samples per second can be set for both channels allowing for capture of short duration process signal anomalies. CompactFlash™ cards up to 2 GigaBytes in size can be used allowing many data points to be stored over long periods of time.

The DC1250 can be used in conjunction with any of Monarch's speed measurement sensors. Power for sensors is provided from the DC1250 rear terminals. Measure, display and record RPM ranges from 5 to 600,000. Choose the sensor best suited for your application or take your existing signal directly into the DC1250.

Specifications (abbreviated)

<table>
<thead>
<tr>
<th>Input Power</th>
<th>Standard 9 Vdc ±5% @ 30mA max</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Voltage</td>
<td>0.250mV - 1.25V, 0.5V - 12.5V</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.1% of reading</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.05% of full scale</td>
</tr>
<tr>
<td>DC Current</td>
<td>-50mA to 50mA</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.1% of reading excluding 25mH stator current (required)</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.05% of full scale</td>
</tr>
<tr>
<td>Frequency</td>
<td>0 Hz to 60,000 Hz</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.1% of full scale</td>
</tr>
<tr>
<td>Voltage Input</td>
<td>0 V to 30 V</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.1% of reading excluding 10mA external sensors</td>
</tr>
<tr>
<td>Control Input</td>
<td>Low ±1.2V, High ±2.0V</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1% of reading excluding 10mA external sensors</td>
</tr>
<tr>
<td>Pulse Width</td>
<td>10 microseconds minimum</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>0–2000 ohms</td>
</tr>
<tr>
<td>Measure Rate</td>
<td>Up to 100 samples/second per channel</td>
</tr>
<tr>
<td>Math Functions</td>
<td>Y = mx + b, Y = mx, Y = mx, b, Y = m(x - x), b, Y = m(x - x), y</td>
</tr>
<tr>
<td>Media</td>
<td>CompactFlash™ up to 2GB use max.</td>
</tr>
<tr>
<td>Display</td>
<td>LCD graphics, 160 x 80 pixels, black paint with white LED backlight. User controlled backlight level and contrast adjustment.</td>
</tr>
<tr>
<td>User Interface</td>
<td>5 button keypad (dual function buttons)</td>
</tr>
<tr>
<td>Clock</td>
<td>Auto-leeper and daylight savings adjustment. Internal battery back-up</td>
</tr>
<tr>
<td>Relay Outputs</td>
<td>Two alarm outputs: 10 VDC Form A and 20 VDC Form C</td>
</tr>
<tr>
<td>Voltage Output</td>
<td>0–5Vdc ±5% to power external sensors</td>
</tr>
<tr>
<td>Control Input</td>
<td>Input 1: 5-15Vdc activation @ 10mA typical</td>
</tr>
<tr>
<td>Audible</td>
<td>Internal beeper (multiple tones).</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Front panel: 96mm x 96mm (1/4 DIN) x 152mm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.3% of full scale</td>
</tr>
<tr>
<td>Current</td>
<td>1mA</td>
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Ordering Information

Item | Description | Part No. |
<table>
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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>SLP 115/230</td>
<td>Smart Laser Sensor with 115/230 Vac universal power supply/recharger.</td>
<td>6180-022</td>
</tr>
</tbody>
</table>

Contact us:
sales@monarchinstrument.com
500 W. 5th Street #1, Clearwater, FL 33765
Ph: 800-399-3390
Fax: 603-886-3300
www.monarchinstrument.com

Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Range (RPM)</th>
<th>Output Signal</th>
<th>Pulse Width</th>
<th>Output Connector</th>
<th>Power</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Same as sensor</td>
<td>TTL 0-V or 5-V (user selectable polarity)</td>
<td>DigiTech: Determined by size of target and rotational speed</td>
<td>BNC connector</td>
<td>Rechargeable Ni-MH batteries, 40 hours or continuous with 115/230Vac supply/recharger with interchangeable wall plugs</td>
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<td>Self Powered Sensor</td>
<td>6150-020</td>
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<tr>
<td>CSLS</td>
<td>Compact Smart Laser Sensor</td>
<td>6180-021</td>
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500 W. 5th Street #1, Clearwater, FL 33765
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<tr>
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<td>Smart Laser Sensor with 115/230 Vac universal power supply/recharger, BNC connector.</td>
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</tr>
</tbody>
</table>
The Portable USB Temperature and Humidity Probe combines high accuracy temperature and humidity sensors into a rugged stainless steel probe with built-in USB interface. The probe can be used with Windows based PCs or Android devices that support On-The-Go communications. To use with an Android device simply download the free App from Google Play, plug the probe into your device with the supplied interface cables and start the application. The probe receives its power from the host USB device. Real time data is displayed and can be stored for review on the PC using a spreadsheet or review data graphically using our free Track-It™ data logger software. Available in 12” or 18” (300mm or 450mm) lengths. The probe comes standard with a free flow Delrin cap. Optional sintered stainless steel filter caps are available for measuring dry bulk material or for use in dusty/dirty environments.

### Features
- Rugged stainless steel construction
- 6.5” (2 meter) USB cable included
- Android On-The-Go cable included
- High accuracy and repeatability
- Dew point calculation
- Humidity through contact method
- TH Probe Android App or the TH Probe PC Software
- Portable USB Temperature and Humidity Probe
- THProbe_Software.zip
- Portable USB connection
- Waterproof
- Android and PC compatible
- Includes 12” Temperature/Humidity probe with 2 meter USB interface cable and Android On-The-Go cable
- Dusty/dirty environments
- History data update
- Free PC software
- TH Probe PC Software
- Track-It™ Software
- Android device not included

### Typical Uses
- HVAC spot checking
- Environmental chambers
- Laboratories
- Storage facilities

### Specifications
- **Temperature**
  - Range: 40 to 85°C (100°F)
  - ±0.2°C (±0.4°F)
  - Accuracy: 0 to 100%
  - ±0.4°C
  - Repeatability: 0 to 100%

- **Relative Humidity**
  - Range: 0 to 100%
  - ±0.1 %RH
  - Accuracy (°F): 10 to 90%
  - ±1.2 %RH
  - Response: Tau at 65%: 10 Sec

### Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>THProbe_Software.zip</td>
<td>Download the free PC software here: <a href="http://www.monarchinstrument.com/Software/THProbe_Software.zip">www.monarchinstrument.com/Software/THProbe_Software.zip</a></td>
</tr>
</tbody>
</table>

### Facilities that establish a predictive maintenance program are able to:
- Improve machinery reliability and reduce unplanned failures
- Reduce maintenance costs
- Optimize machinery performance to increase productivity
- Lower energy consumption-less vibration usually means less friction
- Extend bearing service life

### Why Measure Vibration?
Vibration is considered the best operating parameter to judge dynamic conditions such as balance (overall vibration), bearing defects (enveloping) and stress applied to components. Many machinery problems show themselves as excessive vibration. Rotor imbalance, misalignment, mechanical looseness, structural resonance, soft foundation, and gear mesh defects are some of the defects that can be measured by vibration. Measuring the “overall” vibration of a machine, a rotor in relation to a machine or the structure of a machine, and comparing the measurement to its normal value (norm) indicates the current health of the machine.

### Vibration Severity Per ISO 10816-1

<table>
<thead>
<tr>
<th>Machine</th>
<th>Class I Small Machines</th>
<th>Class II Medium Machines</th>
<th>Class III Large rigid Foundation</th>
<th>Class IV Large soft Foundation</th>
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<tbody>
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<td>dB(A)</td>
<td>dB(A)</td>
<td>dB(A)</td>
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<table>
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<th>Machine</th>
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<th>Class IV Large soft Foundation</th>
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<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

### Ordering Information

**Vibration Meter**
- **Part No.** 6400-011
- **Description** Examiner 1000
  - Overall vibration meter and electronic stethoscope includes: vibration meter, batteries, a calibrator and integrated cable, magnetic base, string probe, stereo headphones, field carrying case, owners manual and machinery data worksheet.

**Examiner 1000 NIST**
- **Part No.** 6400-011-Cal
- **Description** Same as above with NIST Certification Certificate
Monarch International, Inc. was founded in 1977 as a sales and service organization for a diverse range of instrumentation. In 1982, the Monarch Instrument Division was established to manufacture and market the first microprocessor based portable tachometers.

In 1992, Monarch introduced the DataChart™ Paperless Recorder. Today, we offer a wide range of technical capabilities and competitive pricing throughout the DataChart™ product line to include color touch-screens and multi-channel recorders.

The Track-It™ Data Logger line was introduced in 2010. New and innovative models are being added continuously. Monarch Instrument remains committed to innovations and quality in sales, customer service and manufacturing. “Innovation in Instrumentation” is the Monarch design philosophy and in recent years we have introduced state-of-the-art products:

- illumiNova® Fixed Mount Stroboscopes
- Nova-Pro® Stroboscope/Tachometer
- PLS Pocket LED Stroboscope
- Track-It™ Indicating Pressure/Temp Logger
- DataChart™ 6000 Paperless Recorder

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Our full service sales force and world-wide distribution network stands ready to answer purchase and product application questions. Please feel free to contact us via our toll free number, website, e-mail or fax. We offer a comprehensive line of precision products and calibration services, all with the convenience of the Internet. Monarch Instrument is a ISO9001:2015 certified facility.

Please visit our website to locate a distributor in your area.

www.monarchinstrument.com

Visit our website to see our complete range of products:

- Track-It™ Pressure Loggers
- Portable Tachometers
- Panel Tachometers
- Frequency Converters
- Track-It™ Data Loggers
- DataChart™ Paperless Recorders
- Speed Sensors
- Portable Strobes

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