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WE HAVE OVER 5,000 ITEMS IN STOCK
TOPCON IS SCANNING, ROBOTIC, REFLECTORLESS IMAGING STATION

Topcon’s IS combines the best of two worlds, advanced imaging and high-accuracy surveying, incorporating real-time field imagery with spatial data. The IS’s powerful functionality is controlled using Topcon’s exclusive ImageMaster software that produces “photography with dimension”, a revolutionary and cost effective alternative to laser scanning.

Imaging Station Series Features:
- IntelligentScan automatically recognizes significant features in the images. Its 20 pps scan rate is ideal for most applications, and its 2000m precision reflectorless range is tops in its class.
- ImageDrive lets you visually operate from the controller and easily switch from imaging to prism tracking.
- First with Independent Control to allow complete control from your computer, WiFi-equipped FC-2200, and other compatible devices.
- Integrated dual-camera array with wide-area and 30x scope view so you can zoom in on the detail you need.

A Robot at Heart…
Our 9000A series robotic system features sophisticated technology unique to Topcon– our one-touch quick lock feature that set the standard in robotic target acquisition has taken another step forward, with the sleek new RC-3 system. All 9000A series robotic systems offer reflectorless measurement – capable of precision measurements at 2000 meters!
- Innovative, completely cable-free system design
- Superior X-TRAC™ Quick-Lock tracking technology
- Full-color, graphical Windows Mobile instrument & field controller interface

TOPCON GPT-7000I IMAGING TOTAL STATION

Topcon GPT-7000i imaging total station makes your field data come alive. Captured job site photos are incorporated into your measurement data, or use the onboard imaging technology to superimpose design points or stakeout points. By adding optional digital imaging software you can combine multiple job site photos and create 3D models and point clouds! Never miss a required shot again!

GPT-7000i Series features:
- Dual-view integrated CCD camera: wide and finder view
- Windows CE.NET 4.2 operating system
- Extra-large QVGA LCD TFT color display
- Pinpoint reflectorless measuring up to 250m
- Single prism measuring up to 3000m
TOPCON GR-3 RECEIVER

GR-3 features:
• Digital UHF or Spread Spectrum radio
• Advanced Rugged System Design
• Optional Internal GSM/GPRS/CDMA Cellular Communication
• 72 Universal Tracking Channels
• Bluetooth Wireless Technology
• G3 Satellite Tracking (GPS, Glonass, Galileo)

Rugged magnesium I-beam construction for unbeatable strength & durability, the GR-3 also boasts easily accessible SD card memory and dual hot-swappable batteries for unlimited continuous operation. Internal Bluetooth wireless technology provides GR-3 users with the advantages of a completely cable-free system with any Topcon field controller.

TOPCON HIPER® PRO

HiPer® Pro features:
• Completely cable-free design
• Long range UHF radio – Up to 4mi. coverage!
• Compact, lightweight design
• Fully integrated receiver/antenna
• Dual-frequency, dual-constellation RTK GPS+ tracking

TOPCON HIPER® LITE+

HiPer® Lite+ features:
• Super-fast and easy base station setup – tripod, tribrach, and HiPer Lite + – you're done!
• Cable-free rover works with Bluetooth® wireless technology equipped field controllers
• Integrated spread spectrum radio works with HiPer Lite + and standard HiPer Lite rovers up to 2.5km away
• No FCC licensing requirements
• 40-channel dual-frequency GPS plus GLONASS availability
• Exclusive AMR and Co-op Tracking™ technology

TOPCON HIPER® L1

HiPer®-L1 features:
• Compact, lightweight design
• Fully integrated receiver/antenna
• Single frequency static GPS solution
• Upgradeable to GPS+ RTK capability
• Up to 128Mb of memory
• Affordable entry-level system
• Upgradable to dual frequency
With such an array of options available, contact a Mingolo Precision Products specialist who will help you select the right manufacturer, model and help you configure the right package for you.

SOKKIA GSR2700ISX INTERGRATED GNSS SYSTEM

The new GSR2700 ISX features a fully integrated, triple-frequency, high-performance receiver with GPS plus Russian-based GLONASS satellite tracking capability. The receiver offers seventy-two universal channels for increased satellite coverage and improved performance on the job.

The GSR2700 ISX also features numerous additional enhancements, including improved RTK performance, seamless Virtual Reference Station support, multiple Bluetooth® connection options and support for GPS L2C and L5 signals. The system is completely cable free and extremely easy to set up and operate in base and rover modes. The receiver is also the only one of its kind to offer audible status notification in the field, now available in multiple languages and generic.

Equipped with rugged magnesium alloy housing, the GSR2700 ISX provides complete protection against dust ingress and is water immersible up to 1.0 m (3.3 ft.).
GSR1700 CSX L1 GNSS is a highly scalable survey system offering three survey styles for centimeter-accurate surveying – static, stop-and-go and RTK.

Initially, you can use the system for static or stop-and-go surveys for topographic and control surveys, then you can upgrade to the lightest RTK system to perform real-time survey tasks, such as construction layout.

Use Sokkia GSR NetLink for a wireless GPRS data link with no broadcast range limitation or use UHF or license free spread spectrum radio modems.

The optional SDR+ S/K Edition data collection software, made exclusively for the GSR1700 CSX system, works with surveyors of all skill levels to produce superior data collection for any static and kinematic survey.

GPS, GLONASS, and SBAS satellite tracking allows initialization in seconds and consistent centimeter level positioning even in urban areas and in areas with dense tree coverage.

Simply mount the receiver on a tripod, press the power button, and begin transmitting RTK base corrections and collecting raw data in seconds. Multiple Bluetooth® wireless connections and an integrated antenna allow for convenient and cable-free surveying.

The minimal learning curve of the GSR1700 CSX enables you to harness the power of GPS surveying right away and tackle your next surveying application without breaking your budget.

A Mingolo Precision Products specialist can help your field crew be productive quickly with training and support.
The Spectra Precision® EPOCH® 35 GNSS system uses highly accurate Global Positioning System (GPS) and GLONASS technology for cadastral, topographic, control, stakeout and other precision survey applications. Combining both these satellite services provides the user with the greatest possible satellite coverage. This allows observations in areas where only one satellite solution would not provide results. The EPOCH 35 is a complete GNSS system that includes a base, rover, field software, data collector, and radio modem. The EPOCH 35 GNSS receiver features integrated Bluetooth capability, and an internal, field replaceable battery. The rover includes an internal radio modem. The system runs Spectra Precision Survey Pro software. This premiere field software operates on the Spectra Precision Ranger™, Nomad™ and Recon® data collectors.

With fast, reliable initialization, the EPOCH 35 GNSS is a measurement solution that provides high-quality results in several survey modes including RTK, Static and PPK. The system operates without line-of-sight between points, and can be used in any weather. Designed as a multi-purpose tool the EPOCH 35 GNSS system provides total flexibility. Built especially for surveyors, the compact and lightweight EPOCH 35 GNSS integrates the user control interface panel into one powerful measurement solution.

For RTK surveying, the base system may include a choice of radio modems that provide either a high or low power data link from the base to the rover. In addition, Network RTK is also supported by simply connecting to an external data capable cellular modem or by using a data collector with integrated WAN. Back at the office, surveyors can use the Spectra Precision Office software for post processing and quality control.

Positioning Data Link (PDL) radio kits and communication products from Pacific Crest provide the critical connection between the GPS/GNSS reference station and other GPS/GNSS user equipment. Pacific Crest PDL units are compact, lightweight and power-efficient. The unique design of these units allows them to be mounted easily on all standard tripods and range poles.

Pacific Crest PDL radios are turnkey solutions for RTK data links that easily integrate with most major GPS/GNSS OEM equipment. The data link features a 19,200 bps data rate and flexible transparent or packet-based protocol. Waterproof and all-weather operational, PDL modems, kits and accessories help you increase productivity in the field no matter where you are since they are compatible with GPS RTK equipment.
MAGELLAN PROMARK3 RTK SYSTEM

ProMark3 RTK offers superior GPS capability in a complete range of survey modes, including real-time, real-time + raw data, post-processing and mapping. Ideally suited for short baseline surveys, such as construction site, stake out, and cadastral, ProMark3 RTK is a high-performance positioning, GNSS and mapping solution.

ProMark3 RTK is available as an all-inclusive Base + Rover system with a license-free plug-and-play radio kit. This provides a great advantage when a network is unavailable or when surveying independently from 3rd party data corrections.

*Customized configurations available*

MAGELLAN PROMARK3 SYSTEM

ProMark3 delivers centimeter, post-processed positioning for accurate surveys as well as sub-meter accuracy in real-time for GIS/mapping and navigation. All the required hardware and software needed to perform fast centimeter accurate static, stop & go, and kinematic surveys, as well as GIS/mapping, is ready to go, right out of the box.

*Customized configurations available*

MAGELLAN MOBILE MAPPER 6

This SBAS enabled high-sensitivity GPS receiver continuously tracks up to 12 satellites to compute and update your position (2-5m accuracy) even in difficult conditions, such as under tree canopy and urban surroundings. The MobileMapper 6 comes with Microsoft Windows Mobile 6, a color touch-screen and has Bluetooth for wireless connectivity. You can collect GIS/GPS points and maps via the GIS application of your choice, navigate, and communicate wirelessly.

*Customized configurations available*

MAGELLAN MOBILE MAPPER CX

Compatible with Windows CE based GIS applications; the MobileMapper CX provides real-time sub-meter and even sub-foot accuracy in post-processing. Support of wireless technologies (Bluetooth and WLAN), DGPS networking capabilities, huge storage capability, built-in alphanumeric keypad.

*Customized configurations available*
About Us ...

We have been serving the surveying and contracting trades with distinction since 1912.

We are a full service facility ready to serve your needs.

We have a 5,000 square foot warehouse stocked with just about any item you need -- ready for immediate shipment.

If you would like to get a "hands-on" feel for any equipment, stop by and visit our showroom and talk with our expert staff. Field demonstrations are available.

We have a highly-skilled service department that can take care of any equipment that needs repair or adjustment. Our expert sales and service personnel have over 25 years of experience.

Recent Achievement & Recognition Awards

- N.J.S.P.L.S. "Friend of Society Award"  •  1994 • 2007
- Sokkia Dealer Achievement Award 2008
- Sokkia Presidents Award 2009
- Nikon Dealer Achievement Award 1987
- Recognition Award "BBB Equipos S.A. 15 Years" 2008
  Bogota, Colombia

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201-488-6300 • 1-800-LEVEL UP • Fax: 201-488-9020
www.mingoloprecision.com
Email: mingoloprecision@covad.net

Sales • Service • Rentals • Repairs
FOCUS 30 ROBOTIC TOTAL STATION

The speed of observation and precise positioning of the FOCUS 30 robotic total station is provided by patented StepDrive technology. StepDrive controls the horizontal and vertical motion of the motors, so there is no need for traditional motion locks. Using the motorized drives it is possible to precisely turn to, and repeat angle measurements. This results in quick and reliable measurements which substantially increases your staking productivity. Each FOCUS 30 model includes a tracking sensor that uses LockNGo technology enabling the instrument to constantly lock onto the prism. The benefit of LockNGo technology is the ability to follow the prism at all times and reduce downtime from not having to re-point the instrument on every observation.

To maintain contact between the FOCUS 30 instrument and the remote observer with the range pole and prism, the robotic solution must include a communication link. The FOCUS 30 uses an integrated 2.4 GHz radio modem as does the Spectra Precision Ranger™ data collector. The 2.4 GHz radio modems provide interference free robotic data communications.

From high-order control surveys to topographic data collection or fast-paced construction stakeout, you can rely on a FOCUS 30, even in harsh outdoor conditions. The FOCUS 30 total station is combined with Spectra Precision Survey Pro field software, providing you with world class software solutions for any surveying situation. An example of these features includes a unique robotic software technology that can be used when associating the FOCUS 30 with a low-cost GPS receiver and Survey Pro software. This combination of technologies allows the user to take full advantage of the Spectra Precision GeoLock™ technology to keep locked on target.

The Spectra Precision GeoLock field software technique allows a robotic total station to perform an aided search for an optical target using an initial GPS position. The remote instrument can then be directed towards the robotic roving operator using the GPS position and a subsequent search is quickly performed to re-acquire the target at the robotic rover. This technique greatly reduces wasted time, improving your field work efficiency.

- StepDrive technology
- LockNGo technology
- Featuring Spectra Precision® Survey Pro™ software onboard
- Three Robotic models 2", 3" and 5" accuracies
- Long-range, reflectorless distance measurement
- High-precision prism measurements
- GeoLock™ technology

Angle measurement
Accuracy (Standard deviation based on ISO 17123-3)
2" (0.6 mgon), 3" (1.0 mgon), or 5" (1.5 mgon)

Distance measurement
Accuracy to Prisms (Standard deviation based on ISO 17123-4)
Standard..............................................2 mm + 2 ppm (0.007 ft + 2 ppm)
Tracking...............................................5 mm + 2 ppm (0.016 ft + 2 ppm)

Accuracy Reflectorless Mode
Standard < 300 m (984 ft) .......................3mm + 2 ppm (0.01 ft + 2 ppm)
Standard > 300 m (984 ft) .....................5mm + 2 ppm (0.016 ft + 2 ppm)
Tracking...............................................10mm + 2 ppm (0.033 ft + 2 ppm)

Range Prism Mode
1 prism.................................................4000 m (13,123 ft)
3 prisms..............................................7000 m (22,966 ft)
Foil Reflector 60 mm.............................300 m (984 ft)
ROBOTIC TOTAL STATIONS

TOPCON REFLECTORLESS GPT-9000A AUTOTRACKING SERIES (W/RADIO)
Features: The Topcon GPT-9000 series of robotic total station boasts a new modern design, faster motors, 2,000 meter reflectorless range, and new X-TRAC prism tracking technology.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Reflectorless Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960427</td>
<td>GPT-901A</td>
<td>1&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2,000m</td>
<td>1</td>
<td>64 meg</td>
</tr>
<tr>
<td>960428</td>
<td>GPT-903A</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2,000m</td>
<td>1</td>
<td>64 meg</td>
</tr>
<tr>
<td>960429</td>
<td>GPT-905A</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2,000m</td>
<td>1</td>
<td>64 meg</td>
</tr>
</tbody>
</table>

Note: Distance range between GPT-9000A and controller is approximately 1,000 meters.

TOPCON GTS-900A AUTOTRACKING SERIES (W/RADIO)
Features: The Topcon GPT-9000 series of robotic total station boasts a new modern design, faster motors and new X-TRAC prism tracking technology.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960424</td>
<td>GTS-901A</td>
<td>1&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>1</td>
<td>64 meg</td>
</tr>
<tr>
<td>960425</td>
<td>GTS-903A</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>1</td>
<td>64 meg</td>
</tr>
<tr>
<td>960426</td>
<td>GTS-905A</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>1</td>
<td>64 meg</td>
</tr>
</tbody>
</table>

Note: Distance range between GTS-900A and controller is approximately 1,000 meters.
The SRX from Sokkia is a fully-robotic, fully-tracking and auto-pointing robotic total station, with on-demand target reacquisition.

Sokkia's fully-tracking SRX uses the latest robotic technology. Sokkia's patented RED-tech EX technology offers the highest precision on all ranges of measurements. Sokkia's flagship Total Station has the latest technology on-board to make single-operator measuring quick, easy and accurate. The power and familiarity of a Windows CE operating system is on-board the SRX.

Sokkia's SRX has Bluetooth wireless technology for cable-free use. Saving data is easier than ever before with the options of USB or compact flash. Sokkia's also enhanced the encoder with IACS technology. Groundbreaking new Independent Angle Calibration System (IACS) provides extremely reliable angle measurement with unprecedented stability.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Reflectorless Range</th>
<th>Displays</th>
</tr>
</thead>
<tbody>
<tr>
<td>8670001</td>
<td>SRX1-AT</td>
<td>1&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
</tr>
<tr>
<td>8670002</td>
<td>SRX2-AT</td>
<td>2&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
</tr>
<tr>
<td>8670003</td>
<td>SRX3-AT</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
</tr>
<tr>
<td>8670005</td>
<td>SRX5-AT</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: Distance range between SRX and RC-PR3 is approximately 300 meters.
PRISMLESS TOTAL STATIONS

TOPCON
GPT-3000 SERIES

Features:
• Longest non-prism range
• 400MHz Intel Windows CE operating system with TopSURV on-board software
• CF card, USB Type A and USB mini slots
• Expanded full alpha/numeric keypad

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless</th>
<th>Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960343</td>
<td>GPT-3002LW</td>
<td>2&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>3,000m</td>
<td>1,200m</td>
<td>2</td>
<td>8,000 Points</td>
<td></td>
</tr>
<tr>
<td>960344</td>
<td>GPT-3003LW</td>
<td>3&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>3,000m</td>
<td>1,200m</td>
<td>2</td>
<td>8,000 Points</td>
<td></td>
</tr>
<tr>
<td>960345</td>
<td>GPT-3005LW</td>
<td>5&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>3,000m</td>
<td>1,200m</td>
<td>2</td>
<td>8,000 Points</td>
<td></td>
</tr>
</tbody>
</table>

TOPCON
GPT-7500 SERIES

Features:
• Longest non-prism range
• 400MHz Intel Windows CE operating system with TopSURV on-board software
• CF card, USB Type A and USB mini slots
• Expanded full alpha/numeric keypad

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless</th>
<th>Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960557</td>
<td>GPT-7501</td>
<td>1&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>2000m</td>
<td>8,000 Points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>960558</td>
<td>GPT-7503</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>2000m</td>
<td>8,000 Points</td>
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<td></td>
</tr>
<tr>
<td>960559</td>
<td>GPT-7505</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>2000m</td>
<td>8,000 Points</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TOPCON
GPT-3100W SERIES (WIRELESS)
Features: Topcon’s GPT-3100W uses a dual laser optics system, one narrow beam for non-prism functions, and a broader beam when using a prism. This stabilizes the beam over long distances providing accurate measurement, even in adverse atmospheric conditions such as heat shimmer.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960550</td>
<td>GPT-3102W</td>
<td>2&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>350m</td>
<td>2</td>
<td>8,000 Points</td>
</tr>
<tr>
<td>960551</td>
<td>GPT-3103W</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>350m</td>
<td>2</td>
<td>8,000 Points</td>
</tr>
<tr>
<td>960552</td>
<td>GPT-3105W</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>350m</td>
<td>2</td>
<td>8,000 Points</td>
</tr>
<tr>
<td>960553</td>
<td>GPT-3107W</td>
<td>7&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>350m</td>
<td>1</td>
<td>8,000 Points</td>
</tr>
</tbody>
</table>

TOPCON
CTS-3000 SERIES
Contractors Total Station Features:
- On-board software
- Class 1, eye-safe lesser
- Extended keypad

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960411</td>
<td>CTS-3005</td>
<td>5&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>3,000m</td>
<td>250m</td>
<td>1</td>
<td>8,000 points</td>
</tr>
<tr>
<td>960412</td>
<td>CTS-3007</td>
<td>7&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>3,000m</td>
<td>250m</td>
<td>1</td>
<td>8,000 points</td>
</tr>
</tbody>
</table>
SOKKIA SET 30R/30RK SERIES (BLUETOOTH)

The Sokkia Series 30R Reflectorless Total Station is able to do pinpoint, high accuracy measurements at locations that are difficult to reach. Measurements to corners of objects, high-voltage electricity wires and a building face survey are examples of the precision this series can offer, all with the convenience of Bluetooth wireless technology.

<table>
<thead>
<tr>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET230R</td>
<td>2&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>200m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET330R</td>
<td>3&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>200m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET530R</td>
<td>5&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>200m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET230RK</td>
<td>2&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>200m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET330RK</td>
<td>3&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>200m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET530RK</td>
<td>5&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>200m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET230R3</td>
<td>2&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>350m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET330R3</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>350m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET530R3</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>350m</td>
<td>10,000 points</td>
</tr>
<tr>
<td>SET630R3</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>4,000m/5,000m</td>
<td>350m</td>
<td>10,000 points</td>
</tr>
</tbody>
</table>

Note: RK Series comes standard with a 10-Key keyboard.
**SOKKIA SET X SERIES (BLUETOOTH)**

The SET X SDR program is Windows CE-based data collection software that increases functionality by providing powerful surveying programs with an easy-to-follow workflow, customizable settings and a graphic interface. RED-tech EX uses only one visible red laser beam for measuring and pointing. SET X features SOKKIA’s original absolute encoders based on SOKKIA’s digital level RAB (RAndom Bi-directional) Code technology.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Reflectorless Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>8631001</td>
<td>SET1X</td>
<td>1&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
<td>64 meg</td>
</tr>
<tr>
<td>8631002</td>
<td>SET2X</td>
<td>2&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
<td>64 meg</td>
</tr>
<tr>
<td>8631003</td>
<td>SET3X</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
<td>64 meg</td>
</tr>
<tr>
<td>8631005</td>
<td>SET5X</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>5,000m/8,000m</td>
<td>500m</td>
<td>1</td>
<td>64 meg</td>
</tr>
</tbody>
</table>

**Call us for the most current technologies as they are introduced!**

**Mingolo Precision Products Provides:**

- Sales • Rentals • Financing
- On-site Training • Technical Support
- Service • Repairs
Nikon’s next generation total station is the Nivo™, available in two exciting lines: the Nivo C Series and Nivo M Series. Both of the Nivo Series are the absolute leaders for go anywhere measurement tools. Compact in size and light weight they are convenient to carry over long distances. All Nivo models are supported with legendary Nikon high clarity optics, allowing clearer images in bright and low light conditions, making measurements easy and reducing eye stress.

The fast, long range EDM measures in both prism and reflectorless modes. All models measure precisely to objects up to 300m away without the need for a prism*. Nivo models come standard with a traditional optical plummet which can be upgraded to a laser plummet.

The Nivo C series is designed with a feature-packed Windows CE touchscreen interface. Field application software functions are supported by the world class Spectra Precision® Survey Pro™, field software for all your surveying and construction measurement needs.

Nivo C series includes:
- Support for USB memory sticks
- Wireless cable free Bluetooth connections to external data collectors
- USB High-speed data transfer port

### NIVO C SERIES
- Survey Pro software onboard
- Windows CE touchscreen
- Prism and reflectorless measurements
- Hot swappable batteries
- Cable-free Bluetooth®
- Optional laser plummet

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism</th>
<th>Reflectorless Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNA30230</td>
<td>NIVO 2.C</td>
<td>2&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>300m</td>
<td>2</td>
<td>128Mb</td>
</tr>
<tr>
<td>HNA30300</td>
<td>NIVO 3.C</td>
<td>3&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>5,000m</td>
<td>300m</td>
<td>1</td>
<td>128Mb</td>
</tr>
<tr>
<td>HNA30500</td>
<td>NIVO 5.C</td>
<td>5&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>5,000m</td>
<td>300m</td>
<td>1</td>
<td>128Mb</td>
</tr>
</tbody>
</table>

* Nivo models come standard with a traditional optical plummet which can be upgraded to a laser plummet.
Nikon’s next generation total station is Nivo™ and it is available in two exciting lines: the Nivo C Series and Nivo M Series. Both of the Nivo Series are the absolute leaders for go anywhere measurement tools.

The fast, long range EDM measures in both prism and reflectorless modes. Measure precisely to objects up to 300m away without the need for a prism*.

Nivo M models can support Bluetooth communications to external data collectors. In addition all models come standard with a traditional optical plummet which can be upgraded to a laser plummet. The Nivo2M is available with 1 or 2 faces.

The distance measurements are fast and flexible with the Nivo M series. Use the MSR1 & MSR2 keys to separately configure different prism or reflectorless measurement parameters, eliminating time waste witching between measurement modes.

Nivo M series field software highlights include:
- A complete set of CoGo functions
- Simple data management of files
- Quick-coding for convenient one button data collection of point features and your raw target data

### NIVO M SERIES
- Intuitive powerful software
- Easy-to-use keypad
- Hot swappable batteries
- Cable-free Bluetooth®
- Optional laser plummet

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism</th>
<th>Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNA30280</td>
<td>NIVO 2.M</td>
<td>2&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m</td>
<td>300m</td>
<td>2</td>
<td>128Mb</td>
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<tr>
<td>HNA30350</td>
<td>NIVO 3.M</td>
<td>3&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>5,000m</td>
<td>300m</td>
<td>1</td>
<td>128Mb</td>
</tr>
<tr>
<td>HNA30550</td>
<td>NIVO 5.M</td>
<td>5&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>5,000m</td>
<td>300m</td>
<td>1</td>
<td>128Mb</td>
</tr>
</tbody>
</table>
NIKON
NPL-602 SERIES

The NPL-632 is the prismless version of the DTM-522. It comes with a CompactFlash (CF) slot and a USB port to transfer stored data. Lightweight, all-weather construction.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless</th>
<th>Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQA680UU</td>
<td>NPL-632</td>
<td>2&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>5,000m</td>
<td>210m</td>
<td>2</td>
<td>10,000 Records</td>
<td></td>
</tr>
</tbody>
</table>

NIKON
NPL-502 SERIES

NPL-522 adds prismless option to 502 series: The 522 NPL has reflectorless capabilities that expand the environments you can survey without sacrificing speed or accuracy—you can survey in areas where using a prism would be impossible or dangerous.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless</th>
<th>Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQA435UU</td>
<td>NPL-522</td>
<td>3&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>5,000m</td>
<td>210m</td>
<td>2</td>
<td>10,000 Records</td>
<td></td>
</tr>
</tbody>
</table>

NIKON
NPR-302 SERIES

NPR models have reflectorless capabilities that expand the environments you can survey without sacrificing speed or accuracy. A laser pointer saves time by assisting with target identification, reducing aiming time.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range</th>
<th>Reflectorless</th>
<th>Range</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQA180UU</td>
<td>NPR-332</td>
<td>5&quot;</td>
<td>±(3mm + 2ppm)</td>
<td>5,000m</td>
<td>210m</td>
<td>1</td>
<td>10,000 Records</td>
<td></td>
</tr>
</tbody>
</table>
NIKON DTM-302 SERIES

The DTM-302 Series models have a 1.4-second initial measurement and 1.0-second updates in normal mode. And they feature advanced software to ensure fast, accurate measurements whether you use reflector sheets or glass prisms. Holds an IP56 waterproof rating.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQA46400-U</td>
<td>DTM-322</td>
<td>5”</td>
<td>±(3mm + 2ppm)</td>
<td>2,300m/3,000m</td>
<td>1</td>
<td>10,000 Records</td>
</tr>
</tbody>
</table>

NIKON DTM-602 SERIES

The DTM-652 total station comes with a CompactFlash (CF) slot and a USB port to transfer stored data. Lightweight, all-weather construction.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQA660UU</td>
<td>DTM-652</td>
<td>1”</td>
<td>±(2mm + 2ppm)</td>
<td>2,700m/3,600m</td>
<td>2</td>
<td>10,000 Records</td>
</tr>
</tbody>
</table>

Index on pages 2-3 • Order form on page 101 • 1-800-LEVEL UP • Surveyor’s Shop Vol. 10, No. 1
TOPCON
GTS-230W SERIES (WIRELESS)

Features:
• World's first wireless total station (no cable between instrument and data collector)
• Large, easy-to-read screen
• Expanded keyboard for increased functionality

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960193</td>
<td>GTS-233W</td>
<td>3”</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2</td>
<td>8,000 Points</td>
</tr>
<tr>
<td>960194</td>
<td>GTW-235W</td>
<td>5”</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2</td>
<td>8,000 Points</td>
</tr>
<tr>
<td>960195</td>
<td>GTS-236W</td>
<td>6”</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>1</td>
<td>8,000 Points</td>
</tr>
<tr>
<td>960196</td>
<td>GTS-239W</td>
<td>9”</td>
<td>±(3mm + 3ppm)</td>
<td>2,000m/2,700m</td>
<td>1</td>
<td>8,000 Points</td>
</tr>
</tbody>
</table>

TOPCON
GTS-100N SERIES

Features:
• Economical, rugged, durable, water resistant design
• Ideal for construction stakeout total station
• Expanded full numeric keypad
• Topcon Green Label

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960535</td>
<td>GTS-102N</td>
<td>2”</td>
<td>±(2mm + 2ppm)</td>
<td>2,000m/2,700m</td>
<td>2</td>
<td>24,000 Points</td>
</tr>
<tr>
<td>960536</td>
<td>GTW-105N</td>
<td>5”</td>
<td>±(2mm + 2ppm)</td>
<td>2,000m/2,700m</td>
<td>2</td>
<td>24,000 Points</td>
</tr>
</tbody>
</table>

TOPCON
GTS-750 SERIES

Features:
• 400MHz Intel Windows CE operating system with TopSURV on-board software
• CF card, USB Type A and USB mini slots
• Expanded full alpha/numeric keypad

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>960554</td>
<td>GTS-751</td>
<td>1”</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2</td>
<td>64 meg</td>
</tr>
<tr>
<td>960555</td>
<td>GTS-753</td>
<td>3”</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2</td>
<td>64 meg</td>
</tr>
<tr>
<td>960556</td>
<td>GTS-755</td>
<td>5”</td>
<td>±(2mm + 2ppm)</td>
<td>2,000m/2,700m</td>
<td>1</td>
<td>64 meg</td>
</tr>
</tbody>
</table>
SOKKIA TOTAL STATIONS

SOKKIA SET 20 SERIES

Features:
• Easy-to-follow "Menu" for the shortest learning curve
• Customizable "Softkeys" for quick operation
• IP66 dust/water protection to withstand harsh conditions

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>8644008</td>
<td>SET220</td>
<td>2&quot;</td>
<td>±(2mm + 2ppm)</td>
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<td>2</td>
<td>10,000 Points</td>
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<tr>
<td>8644009</td>
<td>SET320</td>
<td>3&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2</td>
<td>10,000 Points</td>
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<tr>
<td>8644010</td>
<td>SET520</td>
<td>5&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>2</td>
<td>10,000 Points</td>
</tr>
<tr>
<td>8644011</td>
<td>SET620</td>
<td>6&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>3,000m/4,000m</td>
<td>1</td>
<td>10,000 Points</td>
</tr>
</tbody>
</table>

SOKKIA SCT6 (WIRELESS)

The SCT6 has simplified menus and commands, even the occasional user can understand. Based on the proven Series 10 design, the SCT6 carries an industry-leading IP66 dust-proof and water-proof rating, and has a wide temperature working range. It also incorporates Bluetooth wireless technology, eliminating the need to connect a cable to a wireless-enabled datalogger or desktop PC.

<table>
<thead>
<tr>
<th>MP#</th>
<th>Model</th>
<th>Angle Precision</th>
<th>Distance Precision</th>
<th>Prism Range 1 prism/3 prism</th>
<th>Displays</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>8655516</td>
<td>SCT6</td>
<td>6&quot;</td>
<td>±(2mm + 2ppm)</td>
<td>2,400m/3,100m</td>
<td>1</td>
<td>10,000 Points</td>
</tr>
</tbody>
</table>

Sales • Service • Rentals • Repairs
TOPCON DT-200/200L SERIES

This series can be used in any "Wet-Weather" condition and is based on the standard IEC60529 whose definition is "Water projected in powerful jets against the enclosure from any direction shall have no harmful effects". It is provided with Tilt Sensor for Vertical angle correction -- the DT-205/205L assures high precision measurement accuracy. The correction range is ±3'. The DT-200L series (Class II) has a built-in 633nm diode laser that can be seen up to 50 meters away outside in daylite. The DT-200 series allows more than 140 hours of continuous measurement in the angle mode.

<table>
<thead>
<tr>
<th>Telescope</th>
<th>DT-205 (960212)</th>
<th>DT-207 (960213)</th>
<th>DT-209 (960214)</th>
<th>DT-205L* (960215)</th>
<th>DT-207L* (960216)</th>
<th>DT-209L* (960217)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>30x</td>
<td>30x</td>
<td>26x</td>
<td>30x</td>
<td>30x</td>
<td>26x</td>
</tr>
<tr>
<td>Minimum Focus</td>
<td>90cm</td>
<td>90cm</td>
<td>90cm</td>
<td>1m</td>
<td>1m</td>
<td>1m</td>
</tr>
<tr>
<td>Stadia ratio</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Stadia constant</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Electronic Angle Measurement

<table>
<thead>
<tr>
<th>Method</th>
<th>Absolute</th>
<th>Absolute</th>
<th>Absolute</th>
<th>Absolute</th>
<th>Absolute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Reading</td>
<td>1”/5”</td>
<td>5”/10”</td>
<td>10”/20”</td>
<td>1”/5”</td>
<td>5”/10”</td>
</tr>
<tr>
<td>Accuracy</td>
<td>5”</td>
<td>7”</td>
<td>9”</td>
<td>5”</td>
<td>7”</td>
</tr>
</tbody>
</table>

* "L" Series standard with laser pointer

NIKON DIGITAL TRANSITS

- Simple five-button keypad
- Single key access to all operating functions
- Alkaline batteries (up to 48-hour operation)
- Battery life indicator
- Dustproof and waterproof construction (IP56)
- Clear, bright display with backlight
- Reticule (cross hair) illumination

<table>
<thead>
<tr>
<th>Telescope</th>
<th>NE-100 (HRA74100)</th>
<th>NE-101 (HRA73100)</th>
<th>NE-102 (HRA73000)</th>
<th>NE-103 (HRA73010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>30x</td>
<td>30x</td>
<td>30x</td>
<td>30x</td>
</tr>
<tr>
<td>Minimum Focus</td>
<td>2.3 ft.</td>
<td>2.3 ft</td>
<td>2.3 ft</td>
<td>2.3 ft</td>
</tr>
<tr>
<td>Stadia ratio</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Stadia constant</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Electronic Angle Measurement

<table>
<thead>
<tr>
<th>Method</th>
<th>Photoelectric</th>
<th>Photoelectric</th>
<th>Photoelectric</th>
<th>Photoelectric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Reading</td>
<td>10”/20”</td>
<td>5”/10”</td>
<td>5”/10”</td>
<td>5”/10”</td>
</tr>
<tr>
<td>Accuracy</td>
<td>10”</td>
<td>7”</td>
<td>5”</td>
<td>5”</td>
</tr>
</tbody>
</table>
LT8-300 UNIVERSAL TRANSIT-LEVEL

Telescope
Power .................. 26x
Minimum Focus .............. 6'
Accuracy .................. 3/16" @ 150'
Range ...................... 400 ft.

Horizontal Circle
Graduations ............... 1°

Vertical Arc
Graduations ............... 1°

LT8-300P
(Optical Plummet)

TRANSIT-LEVEL

Telescope
Power .................. 26x
Minimum Focus .............. 6'
Accuracy .................. 3/16" @ 150'
Range ...................... 400 ft.

Horizontal Circle
Graduations ............... 1°

Vertical Arc
Graduations ............... 1°

LT8-300 UNIVERSAL LINE TRANSFER UNIT

Telescope
Power .................. 26x
Minimum Focus .............. 6'
Accuracy .................. 3/16" @ 150'
Range ...................... 400 ft.

Horizontal Circle
Graduations ............... 1°

Vertical Arc
Graduations ............... 1°

LT6-900N MERIDIAN TRANSIT-LEVEL

Telescope
Power .................. 22x
Minimum Focus .............. 6'
Accuracy .................. 1/4" @ 75 ft.
Range ...................... 200 ft.

Horizontal Circle
Graduations ............... 1°

Vertical Arc
Graduations ............... 1°

L6-20N MERIDIAN LEVEL

Telescope
Power .................. 22x
Minimum Focus .............. 6'
Accuracy .................. 1/4" @ 75 ft.
Range ...................... 200 ft.

Horizontal Circle
Graduations ............... 1°

BERGER 140B TRANSIT-LEVEL

Telescope
Power .................. 20x
Minimum Focus .............. 4.5'
Accuracy .................. 1/4" @ 75 ft.
Range ...................... 200 ft.

Horizontal Circle
Graduations ............... 15 min.
## AUTOMATIC LEVELS

### TOPCON AT-G1

- **Telescope**
- Magnification: 32x
- Minimum Focus: 3.2 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .03 in.

### TOPCON AT-G1A

- **Telescope**
- Magnification: 32x
- Minimum Focus: 3.2 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .03 in.

### TOPCON AT-G2

- **Telescope**
- Magnification: 32x
- Minimum Focus: 3.2 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .03 in.

### TOPCON AT-G3

- **Telescope**
- Magnification: 30x
- Minimum Focus: 1.6 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .06 in.

### TOPCON AT-G4

- **Telescope**
- Magnification: 26x
- Minimum Focus: 1.6 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .08 in.

### TOPCON AT-G6

- **Telescope**
- Magnification: 24x
- Minimum Focus: 1.6 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .08 in.

### NIKON AS-2C

- **Telescope**
- Magnification: 34x
- Minimum Focus: 3.28 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .03 in.
- Horizontal Circle: 10 min.

### NIKON AS-2

- **Telescope**
- Magnification: 34x
- Minimum Focus: 3.28 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .03 in.

### NIKON AE-7C

- **Telescope**
- Magnification: 30x
- Minimum Focus: 0.98 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .04 in.
- Horizontal Circle: 1°

### NIKON AE-7

- **Telescope**
- Magnification: 30x
- Minimum Focus: 0.98 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .04 in.

### NIKON AE-7C

- **Telescope**
- Magnification: 30x
- Minimum Focus: 0.98 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .04 in.

### NIKON AE-7

- **Telescope**
- Magnification: 30x
- Minimum Focus: 0.98 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .04 in.

### NIKON AP-8

- **Telescope**
- Magnification: 28x
- Minimum Focus: 2.46 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .06 in.

### NIKON AC-2S

- **Telescope**
- Magnification: 24x
- Minimum Focus: 2.46 ft.
- **Accuracy (1 Km Double Run Level)**
- w/o Optical Micrometer: +/- .06 in.
CARLSON MINI
The Carlson MINI data collector is compact and lightweight, yet tough and resilient, and just what surveyors and contractors need in the field:
• Less than 4 1/2 by 7 inches;
• Runs on Windows® Mobile 5;
• Lightning-quick processing and wireless connectivity;
• Fits comfortably in one hand and weighs just slightly more than a pound;
• Comes complete with Carlson SurvCE 2.0, the most powerful data collection software on the market today.
• MIL-STD-810F-rated for water, humidity, sand and dust, vibration, altitude, shock, high temperature, low temperature, and temperature shock.
• Featuring a touch screen and a high contrast color display;
• CarlsonMINI 520MHz with Bluetooth.

CARLSON SURVEYOR/SURVEYOR+
The Carlson surveyor/surveyor+ data collector is compact and lightweight, yet tough and resilient, and just what surveyors and contractors need in the field:
• 10.2” x 5” x 1.5”
• Runs on Windows Mobile 6.1;
• Lightning-quick processing and wireless connectivity;
• Comes complete with Carlson SurvCE 2.0, the most powerful data collection software on the market today.
• IP67-rated for water, humidity, sand and dust, vibration, altitude, shock, high temperature, low temperature, and temperature shock.
• Featuring a touch screen and a high contrast color display;
• 624MHz with Bluetooth and WiFi.
• Memory: Surveyor 512 Mb; Surveyor+ 1 gig
• Expansion: Surveyor + offers Micro SD card slot and Spread Spectrum Radio (900 Mhz/ 2.4 Ghz)/ 3G cellular modem GSM

CARLSON SURVCE 2.0
Powerful Data Collection with new Carlson SurvCE 2.0
Get the user-requested features you’ve been waiting for! New Carlson SurvCE 2.0 combines advanced functionality, ease-of-use, and sheer capability to make it the first choice in data collection software. Carlson SurvCE 2.0 is a complete data collection system for Real Time (RTK) GPS and Total Stations with in-field coordinate geometry. It supports the widest range of popular and new release RTK GPS and conventional/robotic total stations. Software is available in spanish
TDS NOMAD
The new TDS Nomad packs even more functionality into the most powerful and full-featured rugged handheld computer available. Start with an 806 MHz processor, a long-life battery and integrated wireless capabilities like GPS, 802.11g, and Bluetooth. Then select an optional Nomad configuration that also includes the latest Windows Mobile 6 software, an integrated laser bar code scanner, color digital camera. The Nomad also features a high-resolution, sunlight-visible VGA display that shows graphics and maps in crisp detail.

The Nomad meets the rigorous MIL-STD-810F military standard for drops, vibration, humidity, altitude and extreme temperatures. It also comes with an IP67 rating. Every Nomad comes with an 806 MHz Marvell PXA320 XScale processor, 128 MB RAM and a hot-swappable rechargeable lithium-ion battery pack to keep going strong all day. Recharging time is significantly reduced with the use of lithium-ion batteries.

TDS RECON
TDS Recon X-Series rugged handheld computer delivers maximum performance and reliability in a lightweight, extremely rugged design that’s easy to carry. Featuring optional embedded Bluetooth and 802.11g wireless, the waterproof Recon weighs just 17 ounces, meets military specifications for drops, vibration, and both high and low temperature operation, and runs Windows Mobile 6.0. The TDS Recon X-Series has optional built-in Bluetooth and 802.11g wireless communication capabilities. In addition, there are two CompactFlash slots to add memory cards or other CF devices, such as GPS.

The Recon features the high-performance 400 MHz XScale processor, a color display with front light, 256 MB of nonvolatile Flash storage to protect data from resets or power loss. It meets MIL-STD-810F standards for drops, vibration and temperature extremes, and it has an IP67 rating—meaning it’s impervious to dust and water immersion.

TDS RANGER
Smart, tough and loaded with additional features Featuring Windows Mobile 5.0, the next-generation TDS Ranger possesses features that field professionals depend on, like field-ready ruggedness, 30-hour battery and an easy to use keypad and touchscreen. The Ranger grows more versatile as technology evolves, integrating more capabilities designed to improve your work life.

The Ranger gives you the option of integrated Bluetooth and 802.11 wireless. The CompactFlash (CF) slots allow you to add GPS, GPRS, digital cameras, bar-code scanners and other CF devices. The Secure Digital (SD) slot lets you increase data storage to handle larger jobs and is SDIO-enabled.

The Ranger meets rigorous MIL-STD-810F standards for drops, vibration, humidity, altitude and extreme temperatures. And with an IP67 rating, it’s impervious to water and dust, keeping your data safe. For heavy-duty data-collection in a heavy-duty handheld, the Ranger is the way to go.
### Survey Pro Software Function Table Highlights

#### TITLE BAR/TASK BAR
- Toggle collection mode (total station/GPS)
- Battery status indicator
- Map access button
- Editable quick picks

#### FILE
- Import/export
- Job, CSV, TXT, GPS, LandXML files
- Transfer - multiple modes

#### JOB
- Edit points/polylines
- Edit alignments
- Auto linework (real time)
- View raw data
- View DTM
- Manage layers
- Calculator
- All Conversions

#### SURVEY (CONVENTIONAL MODE)
- Backlight setup
- Traverse/sideshot
- Repetition shots
- Multiple sideshots
- Distance/angle offset
- Corner & 2 lines
- Corner & angle
- Corner & offset
- Corner & plane
- Shoot from 2 ends
- Rejection
- Remote elevation
- Check point
- Bluetooth support (Recon)
- Solar observation
- Remote control
- Fine turning
- Tape to turn
- Surface Scan*

#### STAKEOUT
- Cur/fill to design grade
- Generate cut sheet data
- Turn gun to stake with 2-0 and 3-0 modes
- Remote stake from road
- Stake points/list of points
- Stake to line/polyline
- Offset staking
- Slope staking from line or point

#### STAKEOUT, cont.
- Stake to line and offset
- Stake to curve and offset
- Stake to spiral and offset
- Stake DTM
- Define a location
- Where is next point
- Slope staked from a point
- Station staking

#### INVERSE
- Multiple types

#### COGO
- Point in direction
- Intersection
- Offset line/points
- Corner angle
- Compute area
- Triangle solutions
- Map check
- Predetermined area
- H/D Y/D to/from SD/ZA
- Station & offset

#### CURVE
- Curve solution
- PI and tangents
- 3-point curve
- Radius point
- Tangent to circles
- Curve layout
- Traverse on a curve
- Parabolic curve/layout
- Straight grade
- Spiral/spiral layout
- Traverse on a spiral

#### ROADS
- Create/edit template (cross-sections)
- Create/edit alignments
- Save alignment to file
- Add super elevations to road
- Add widenings to road
- Road stakeout

#### ADJUST
- Scale/translate/rotate
- Traverse adjust

#### SETTINGS (CONVENTIONAL MODE), cont.
- Azimuth-bearing
- North/south azimuth
- Various unit format files
- Control/description files
- Feature code files
- Surveying
- Prompt for description
- Prompt for height of rod
- Prompt for layer
- Prompt for attributes
- Scale factor
- Stakeout
- Prompt for layer
- Prompt for attributes
- Repetition shot tolerances
- Auto time-stamp interval
- Alphanumeric point names
- Beemaps

#### SURVEY (GPS MODE)
- Bluetooth support (Recon, Ranger X)
- Cell phone/radio modem coms
- GPS status
- Base/cover setup (Start Survey Wizard)
- Control points
- Collect point, features, offset
- Projection setup/stats
- Remote elevation

#### SETTINGS (GPS MODE)
- Store GPS raw data
- Post process
- Recording interval
- Data collect with map projection & geoid files
- Data collect with local transformation
- Real-time coordinate generation
- Adjust coordinates to latest localization
- All stakeout functions with GPS receiver

#### OPTIONAL LEVELING MODULE
- Digital levels
- Optical levels
- Turn to benchmark
- Turn to turning point
- Sideshot
- Stakesout
- Peg test
-Closure reports
- Level through existing points

*Requires motorized instrument

---

**SURVEY STANDARD™** is a complete data collection package for surveyors. It contains a complete COGO suite as well as traverse, sideshot and staking routines.

**SURVEY PRO** shares all Survey Standard functions and adds advanced road layout routines, advanced staking routines, attribute collection, DTM routines and much more.

**SURVEY PRO GPS** shares nearly all the Survey Pro functions, and it provides the capability to collect data from RTK GPS receivers at centimeter-level accuracy. TDS GPS software is easy to use, reduces training and simplifies setups. It provides meaningful error messages if anything goes wrong. All staking screens work with the GPS receiver.

**SURVEY PRO ROBOTICS** shares all Survey Pro functions, works with all major brands of robotic total stations, and adds graphical staking screens.

**SURVEY PRO MAX™** is the ultimate field software. It integrates Survey Pro Robotics and Survey Pro GPS functions, enabling you to use the same job files with both GPS receivers and total stations.
### TOPCON EXTERIOR LASERS

<table>
<thead>
<tr>
<th>Model</th>
<th>RL-H3A</th>
<th>RL-H3CL</th>
<th>RL-H3C</th>
<th>RL-H3CS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Type</td>
<td>Red (Visible Diode)</td>
<td>Red (Visible Diode)</td>
<td>Red (Visible Diode)</td>
<td>Red (Visible Diode)</td>
</tr>
<tr>
<td>Operating Range (radius)</td>
<td>1,150 ft.</td>
<td>820 ft.</td>
<td>490 ft.</td>
<td>490 ft.</td>
</tr>
<tr>
<td>Slope Range</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>± 5%</td>
</tr>
<tr>
<td>Power (Batteries incl.)</td>
<td>NiMH Rechargeable*</td>
<td>4 &quot;C&quot; size Alkaline</td>
<td>4 &quot;C&quot; size Alkaline</td>
<td>4 &quot;C&quot; size Alkaline</td>
</tr>
<tr>
<td>Battery Life</td>
<td>60 Hours Rechargeable</td>
<td>60 Hours</td>
<td>60 Hours</td>
<td>60 Hours</td>
</tr>
<tr>
<td>Receiver Included</td>
<td>LS-80A</td>
<td>LS-80A</td>
<td>LS-80B</td>
<td>LS-80B</td>
</tr>
</tbody>
</table>

* Alkaline batteries optional

120 Hours battery life

All Receiver Precision: Normal: ±0.08 inch • High Precision: ±0.04 inch

### LEICA EXTERIOR LASERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Rugby 50</th>
<th>Rugby 100</th>
<th>Rugby 100LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Type</td>
<td>Infrared</td>
<td>Visible Beam</td>
<td>Infrared</td>
</tr>
<tr>
<td>Operating Range (Diameter)</td>
<td>1,000 ft.</td>
<td>1,000 ft.</td>
<td>2,500 ft.</td>
</tr>
<tr>
<td>Slope Range (Manual)</td>
<td>N/A</td>
<td>≤10%</td>
<td>≤10%</td>
</tr>
<tr>
<td>Power (Batteries included)</td>
<td>2 &quot;D&quot; size Alkaline</td>
<td>4 &quot;D&quot; size Alkaline</td>
<td>4 &quot;D&quot; size Alkaline</td>
</tr>
<tr>
<td>Battery Life (Alkaline)</td>
<td>60 Hours</td>
<td>60 Hours</td>
<td>60 Hours</td>
</tr>
<tr>
<td>NiMH Rechargeable</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Receiver Included</td>
<td>Rod-Eye Plus</td>
<td>Rod-Eye Basic</td>
<td>Rod-Eye Plus</td>
</tr>
</tbody>
</table>

All Receiver Precision: Normal: ±0.08 inch • High: ±0.04 inch

### TOPCON INTERIOR LASERS

<table>
<thead>
<tr>
<th>Model</th>
<th>RL-VH3D</th>
<th>RL-VH3DR</th>
<th>RL-VH4G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Type</td>
<td>Red Laser 1mW</td>
<td>Red Laser 5mW</td>
<td>Green Laser 532nm</td>
</tr>
<tr>
<td>Operating Range (Dia.)</td>
<td>200 ft./Scanning</td>
<td>200 ft./Scanning</td>
<td>200 ft./Scanning</td>
</tr>
<tr>
<td>Power (Batteries)</td>
<td>Alkaline</td>
<td>Alkaline</td>
<td>Alkaline</td>
</tr>
<tr>
<td>Battery Life</td>
<td>120 Hours Alkaline</td>
<td>90 Hours</td>
<td>27 Hours</td>
</tr>
</tbody>
</table>

### LEICA INTERIOR LASERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Rugby 55</th>
<th>Rugby 200</th>
<th>Roteo-35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Type</td>
<td>Red Diode</td>
<td>Red Diode</td>
<td>Red Diode</td>
</tr>
<tr>
<td>Range w/detector (diameter)</td>
<td>1,000 feet</td>
<td>1,000 feet</td>
<td>1,000 feet</td>
</tr>
<tr>
<td>Slope Range</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Power (Batteries included)</td>
<td>2 &quot;D&quot; size Alkaline</td>
<td>4 &quot;D&quot; size Alkaline</td>
<td>2 &quot;D&quot; size Alkaline</td>
</tr>
<tr>
<td>Battery Life (Alkaline)</td>
<td>50 Hours</td>
<td>50 Hours</td>
<td>160 Hours</td>
</tr>
<tr>
<td>NiMH Rechargeable</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Infrared Remote Control</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
</tbody>
</table>

Laser accessory packages available on all models

Index on pages 2-3 • Order form on page 101 • 1-800-LEVEL UP • Surveyor’s Shop Vol. 10, No. 1
### TOPCON SLOPE LASER

Simple. Accurate. Rugged. Compact. Affordable. The RL-100 Series' revolutionary encoding systems provides the highest grade repeatability, 5 arc seconds, of any other laser.

<table>
<thead>
<tr>
<th>Model</th>
<th>RL-100 1S (957127)</th>
<th>RL-100 2S (957128)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Accuracy</td>
<td>± 10 arc seconds</td>
<td>± 10 arc seconds</td>
</tr>
<tr>
<td>Vertical Accuracy</td>
<td>3/32 inches @ 100 feet</td>
<td>3/32 inches @ 100 feet</td>
</tr>
<tr>
<td>Working Range Diameter</td>
<td>2,500 feet</td>
<td>2,500 feet</td>
</tr>
<tr>
<td>Grade Range</td>
<td>-5% to +25%</td>
<td>-10% to +10% X axis, -5% to +25% Y axis</td>
</tr>
<tr>
<td>Rotation Speed</td>
<td>300/600/900 rpm</td>
<td>300/600/900 rpm</td>
</tr>
<tr>
<td>Remote Control Range</td>
<td>n/a</td>
<td>2-way 1,000 feet</td>
</tr>
<tr>
<td>Battery Life</td>
<td>65 Hours Alkaline</td>
<td>65 Hours Alkaline</td>
</tr>
<tr>
<td>Receiver Included</td>
<td>LS-80B</td>
<td>LS-80B</td>
</tr>
<tr>
<td>Receiving Range</td>
<td>2,500 feet</td>
<td>2,500 feet</td>
</tr>
</tbody>
</table>

From agricultural land leveling to large construction sites, there isn’t another laser available that can deliver dual slopes this accurately or easily. It features an integrated RF remote controller capable of two way communication up to 900 feet. With RT-5SW’s unique Auto-Alignment feature, set up is fast and accurate!

### LEICA SLOPE LASER

The Rugby Grade Lasers are automatic and self-leveling for jobs of any size, large or small. They can be used for any application involving precise grade control such as: building pads, parking lots and runways. Precise depth control for sub base and fine grade excavation, installing gravity flow pipe for drainage, concrete forming and framework, setting foundations and footings, etc.

<table>
<thead>
<tr>
<th>Model</th>
<th>RUGBY 320 SG (6003516)</th>
<th>RUGBY 410 DG (6003520)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>Single</td>
<td>Dual</td>
</tr>
<tr>
<td>Grade Range</td>
<td>-5% to +25%</td>
<td>- 5% to +25% either axis, - 5% to +15% both axis</td>
</tr>
<tr>
<td>Operating Range Diameter</td>
<td>2,500 feet</td>
<td>2,500 feet</td>
</tr>
<tr>
<td>Self-leveling Accuracy</td>
<td>± 1/16 inch/100 feet</td>
<td>± 1/16 inch/100 feet</td>
</tr>
<tr>
<td>Rotation Speed</td>
<td>5/10/15/20 rps</td>
<td>5/10/15/20 rps</td>
</tr>
<tr>
<td>Remote Control Range</td>
<td>200 feet</td>
<td>200 feet</td>
</tr>
<tr>
<td>Battery Life</td>
<td>130 Hours Alkaline</td>
<td>130 Hours Alkaline</td>
</tr>
<tr>
<td>Receiver Included</td>
<td>Rod-eye Plus</td>
<td>Rod-eye Digital</td>
</tr>
<tr>
<td>Receiving Range Diameter</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Every Topcon LS receiver is designed and built to be used on a wide variety of machines, with the least amount of hassle. They’re cost effective and affordable. No cords to rip or tear, just hours of uninterrupted production. Water-proof construction. Compatable with all grade lasers.

### LS-B4 Series
- **Vertical Detecting Range**: 7.875 inches
- **Horizontal Detecting Range**: 360°
- **Automatic Capability**: w/Control Box
- **Laser Detecting Range**: 985 feet
- **Deadband Width (Course)**: ± 0.06 feet
- **Deadband Width (Fine)**: ± 0.02 feet
- **Display Pattern**: 5 Channels + 2 Lost Beam + HI Alert
- **Battery Life**: Alkaline/Rechargeable 60/40 hours

#### LS-B4A Package
- (957057)
- LS-B4A Laser Receiver
- AD-9B AC Charger
- BT-54Q Rechargeable Battery
- DB-54C Rechargeable Battery

#### LS-B4B Package
- (957058)
- LS-B4A Laser Receiver
- 2 "D" Alkaline Batteries
- DB-54 Battery Door for LS-B4

#### LS-B4C Package
- (957059)
- LS-B4A Laser Receiver

### LS-B2 Series
- **Vertical Detecting Range**: 7.875 inches
- **Horizontal Detecting Range**: 360°
- **Laser Detecting Range**: 985 feet
- **Deadband Width (Course)**: ± 0.1 feet
- **Deadband Width (Fine)**: ± 0.01 feet
- **Battery Life**: Alkaline/Rechargeable 80/40 hours

#### LS-B2A Package
- (956933)
- LS-B2 w/ Bracket
- AD-9B AC Charger
- PC-18 Cable, Power
- RD-2 w/bracket
- IR-2 Infrared Receiver
- BT-39Q Ni-Cd Battery Kit

#### LS-B2B Package
- (956932)
- LS-B2 w/ Bracket
- PC-18 Cable, Power
- 20' Cable from LS-B2 to RD
- RD-2 w/bracket

#### LS-B2C Package
- (956931)
- LS-B2 w/ Bracket
- AD-9B AC Charger
- BT-39Q Ni-Cd Battery Kit

#### LS-B2D Package
- (956930)
- LS-B2 w/ Bracket
- PC-18 Cable, Power

### LS-B10 Series
- **Vertical Detecting Range**: 4.72 inches
- **Horizontal Detecting Range**: 270°
- **On-grade Zone (inches)**: 0.08, 0.24, 0.47, 1.18
- **Display Pattern**: 5 Channels On-grade + 10 gradual triangles
- **Wireless**: LS-B10W - Yes
- **Battery Life**: LS-B10W - 20 hours
- **LS-B10 - No**: LS-B10 - 100 hours

LS-B10W (957113) • LS-B1 (957110)
### APACHE

**Bullseye 6**  
(991320-02)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Detecting Range</td>
<td>8.75 inches</td>
</tr>
<tr>
<td>Horizontal Detecting Range</td>
<td>360°</td>
</tr>
<tr>
<td>Swing Range: Plumb Mode</td>
<td>± 2.5°</td>
</tr>
<tr>
<td>Swing Range: ACE Mode</td>
<td>± 10° to ± 30°</td>
</tr>
<tr>
<td>Operating Range</td>
<td>2,000 feet</td>
</tr>
<tr>
<td>Grading Accuracy (fine/standard)</td>
<td>0.4 inch/0.8 inch</td>
</tr>
<tr>
<td>Excavation Accuracy (fine/standard)</td>
<td>0.5 inch/1.00 inch</td>
</tr>
<tr>
<td>Battery Life</td>
<td>Alkaline: 75 hours</td>
</tr>
<tr>
<td></td>
<td>Rechargeable: 50 hours</td>
</tr>
</tbody>
</table>

**Bullseye 5+**  
(991370-02)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Detecting Range</td>
<td>6.75 inches</td>
</tr>
<tr>
<td>Horizontal Detecting Range</td>
<td>360°</td>
</tr>
<tr>
<td>Blade Tilt Settings</td>
<td>± 0.5°, ± 1.5°, ± 2.5°</td>
</tr>
<tr>
<td>Plumb Swing Settings</td>
<td>± 0.5°, ± 1.5°, ± 2.5°</td>
</tr>
<tr>
<td>Operating Range</td>
<td>1,500 feet</td>
</tr>
<tr>
<td>Grading Accuracy (fine/standard)</td>
<td>0.1875 inch/0.375 inch</td>
</tr>
<tr>
<td>Excavation Accuracy (fine/standard)</td>
<td>0.5 inch/1.00 inch</td>
</tr>
<tr>
<td>Battery Life</td>
<td>Alkaline: 60 hours</td>
</tr>
<tr>
<td></td>
<td>Rechargeable: 45 hours</td>
</tr>
</tbody>
</table>

**Bullseye 3+**  
(991340-02)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Vertical Detecting Range</td>
<td>6.75 inches</td>
</tr>
<tr>
<td>Horizontal Detecting Range</td>
<td>360°</td>
</tr>
<tr>
<td>Operating Range</td>
<td>1,500 feet</td>
</tr>
<tr>
<td>Grading Accuracy (fine/standard)</td>
<td>0.1875 inch/0.5 inch</td>
</tr>
<tr>
<td>Battery Life</td>
<td>Alkaline: 75 hours</td>
</tr>
<tr>
<td></td>
<td>Rechargeable: 50 hours</td>
</tr>
</tbody>
</table>

**Hawkeye**  
(220055)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Detecting Range</td>
<td>5 inches</td>
</tr>
<tr>
<td>Horizontal Detecting Range</td>
<td>240°</td>
</tr>
<tr>
<td>Grading Accuracy (grade rod mode)</td>
<td>0.1875 inch</td>
</tr>
<tr>
<td>Machine Accuracy (fine/wide)</td>
<td>0.375 inch/1.00 inch</td>
</tr>
<tr>
<td>Battery Life</td>
<td>Alkaline: 160 hours</td>
</tr>
</tbody>
</table>

**ACE Technology** is self-contained, on-board Angel Compensation for Excavation that automatically calculates and corrects the grade display for the angle of the dipper arm. Dipper arm extends or retracts up to 30 degree.

Blade tilt indication helps the operator keep the blade level for increased production and accuracy. Built in plumb sensor for quick and accurate grade checks.

For use on many types of grading and excavation equipment including dozers, backhoes, excavators and trenchers.

Machine or grade mounted laser control tool. Dual powerful magnets for quick setup without welding.
TOPCON PIPE LASERS

Green beam technology provides the brightest most visible laser beam -- even in bright sunlight, more visible than the traditional red beam.

Features: Large sloped backlit LCD display. Precision grade with accurate leveling and grade system. Versatile three-way beam pipe laser.

RC-200 infrared remote allows remote control of all line and control functions including SmartLine auto alignment. All-cast aluminum construction. Waterproof to at least 16.5 feet.

<table>
<thead>
<tr>
<th>Model</th>
<th>Laser Source (Diode)</th>
<th>Beam Color</th>
<th>Auto Alignment/Range</th>
<th>Auto Zeroing</th>
<th>Plumb Beam</th>
<th>Grade Range</th>
<th>Power (Batteries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP-L4GV</td>
<td>532nm</td>
<td>Green</td>
<td>Yes/500 ft.</td>
<td>Yes</td>
<td>Yes</td>
<td>-15%~40%</td>
<td>45/32 Hrs.</td>
</tr>
<tr>
<td></td>
<td>(957067)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TP-L4AV</td>
<td>633nm</td>
<td>Red</td>
<td>Yes/500 ft.</td>
<td>Yes</td>
<td>Yes</td>
<td>-15%~40%</td>
<td>70/48 Hrs.</td>
</tr>
<tr>
<td></td>
<td>(957068)</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>TP-L4G</td>
<td>532nm</td>
<td>Green</td>
<td>Yes/500 ft.</td>
<td>Yes</td>
<td>Yes</td>
<td>-15%~40%</td>
<td>45/32 Hrs.</td>
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<tr>
<td></td>
<td>(957048)</td>
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<tr>
<td>TP-L4BG</td>
<td>633nm</td>
<td>Red</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>-15%~40%</td>
<td>45/32 Hrs.</td>
</tr>
<tr>
<td></td>
<td>(957049)</td>
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</tr>
<tr>
<td>TP-L4B</td>
<td>633nm</td>
<td>Red</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>-15%~40%</td>
<td>70/48 Hrs.</td>
</tr>
<tr>
<td></td>
<td>(957066)</td>
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</tbody>
</table>

Operating range based on using RC-200 Remote Control which is included. Front range is 660 ft. and top range is 82 ft.

LEICA PIPE LASERS

Compact and powerful, the Piper is the only pipe laser that fits inside a 4 inch pipe.

<table>
<thead>
<tr>
<th>Model</th>
<th>Laser Source (Diode)</th>
<th>Beam Color</th>
<th>Auto Alignment/Range</th>
<th>Auto Zeroing</th>
<th>Plumb Beam</th>
<th>Grade Range</th>
<th>Power (Batteries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPER 100</td>
<td>635nm</td>
<td>Red</td>
<td>n/a</td>
<td>n/a</td>
<td>No</td>
<td>-10%~25%</td>
<td>40 Hrs.</td>
</tr>
<tr>
<td></td>
<td>(748704)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIPER 200</td>
<td>635nm</td>
<td>Red</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-10%~25%</td>
<td>40 Hrs.</td>
</tr>
<tr>
<td></td>
<td>(748710)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wireless Remote Control is included. Front range is 500 ft. and top range is 35 ft.

APACHE PIPE LASER

Heavy-duty, cast aluminum housing is construction tough and totally waterproof.

<table>
<thead>
<tr>
<th>Model</th>
<th>Laser Source (Diode)</th>
<th>Beam Color</th>
<th>Auto Alignment</th>
<th>Auto Zeroing</th>
<th>Plumb Beam</th>
<th>Grade Range</th>
<th>Power (Batteries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARROW 2</td>
<td>635nm</td>
<td>Red</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-10%~30%</td>
<td>42 Hrs.</td>
</tr>
<tr>
<td></td>
<td>(991281)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remote Control is included. Front range is 300 ft. and top range is 50 ft.
PLS 90
TOOL (60512)
SYSTEM* (60534)
Accuracy 1/8 inch @ 100 feet
Range 200 feet
Leveling Range 6 degrees
Power 3 "AA" size Alkaline
Battery Life 30 hours Alkaline
* SLD detector incl. with 60534 only

PLS 360
TOOL (60526)
SYSTEM* (60536)
Accuracy 1/8 inch @ 100 feet
Range 200 feet
Leveling Range 6 degrees
Power 3 "D" size Alkaline
Battery Life 35 hours Alkaline
* SLD detector incl. with 60536 only

PLS 5 TOOL
(60525)
Accuracy 1/8 inch @ 100 feet
Range 100 feet
Leveling Range 8 degrees
Power 3 "AA" size Alkaline
Battery Life 30 hours Alkaline

PLS 3 TOOL
(60523)
Accuracy 1/4 inch @ 100 feet
Range 100 feet
Leveling Range 6 degrees
Power 3 "AA" size Alkaline
Battery Life 30 hours Alkaline

JOHNSON ACCULINE
5 POINT LASER
(406680)
Accuracy 1/8 inch @ 50 feet
Range 200 feet
Leveling Range 4.5 degrees
Power 3 "AA" size Alkaline
Battery Life 20 hours Alkaline

CST/BERGER ILM-XTG
(375803)
Accuracy 3/32 inch @ 30 feet
Range 100 feet
Leveling Range 5 degrees
Power 3 "AA" Rechargeable
Battery Life 30 hours

CST/BERGER XLP-34
(375834)
Accuracy 1/8 inch @ 100 feet
Range 100 feet
Leveling Range 5 degrees
Power 3 "AA" size Alkaline
Battery Life 30 hours Alkaline

Index on pages 2-3 • Order form on page 101 • 1-800-LEVEL UP • Surveyor's Shop Vol. 10, No. 1
All metal holder and metal target. Premium Series 0/-30mm Constant Prism System. Fully compatible with leading manufacturers such as Trimble, Sokkia, Topcon, Pentax, Nikon, etc.
- Hermetically sealed 2-1/2" (62.5mm) precise prism
- Tension adjusting brass knob
- 5/8-11 bayonet adapter
- Colors available: Orange, Chartreuse, Yellow
371010 All Metal Tilt Prism Assembly with Target
371012 0/-30mm Holder with Target Only
371015 0/-30mm Target Only
373033 5/8-11 Bayonet adapter
372017 Prism in cannister only

All metal holder and plastic target. Premium Series 0/-30mm Constant Prism System. Fully compatible with leading manufacturers such as Trimble, Sokkia, Topcon, Pentax, Nikon, etc.
- Hermetically sealed 2-1/2" (62.5mm) precise prism
- Tension adjusting Delrin™ washers
- 5/8-11 bayonet adapter
- Colors available: Orange, Chartreuse, Yellow
372010 Prism Assembly with plastic target and metal yoke
372012 0/-30mm Holder with plastic target only
373033 5/8-11 Bayonet adapter
372017 Prism in cannister only

Strobe prism. Cutting-edge technology! A flashing red LED centered within the prism allows easy targeting over long distances or under adverse weather conditions. LED and two LR44 (1.5V) batteries are completely contained within the hermetically sealed canister. Can be used with any offset and is compatible with all assemblies with M20 threads. (374011)

CST PRISMS & TRIBRACHS

ROTATING TRIBRACH ADAPTER
(8202000)

OPTICAL PLUMMET TRIBRACH
CST Wild-type Tribrachs with optical plummet offer precise plumbing of surveying instruments and adapters, and have a universal 5/8-11 base plate. • Circular leveling sensitivity: 1 0'/2mm • Optical plummet focusing range: 1.5 to 50 ft. (373500)

Laser plummets provide precise and prompt positioning over a point using a focused laser dot. • Laser dot diameter less than or equal to 2mm @ 2m (6') • One "CR2" Lithium cell battery provides 60+ hours intermittent use (374635)
MINI PRISM PACK
The all metal Peanut Pack is a complete and versatile mini prism systems that provides low cost versatility for shots up to 3,000 feet.

Small, light and useful on shots that involve rough terrain. All metal mini prism assembly, includes plumb bob prism mount, prism point, padded Cordura case with belt loop and instruction manual.

Features:
• 0/-30mm offset on dual-sided aluminum tilting target
• 1” (25.4mm) diameter prism, sealed in black anodized aluminum can
• Improved threaded can and ring with special "O" ring for sealing
• On board circular bubble vial
• 5/8 x 11 mounting thread
• Precision prism ground up to 2 arc seconds.

371500 Complete Mini Prism Pack
371503 Mini holder with target only
371510 Plumb bob mount with prism only
371516 Plumb bob mount only
371512 1 inch prism in cannister only
371507 Mini point only

REFLECTORLESS MINI PRISM
Features the 65-1503M aluminum holder, target, and bubble vial, plus a special 3M™ reflective decal. 0mm offset. (371505)

RIGHT ANGLE TRIANGULAR PRISM
Single prism, complete with soft leather pouch. Slot in handle accommodates plumb bob cord. Measures 23/8” (60mm) top to bottom (376900)

DOUBLE RIGHT ANGLE PENTA PRISM
Large Double Right Angle Penta Prism Permits stepping off angles of 90° and 180° with a center lens which permits foresight viewing. Slot in handle accommodates plumb bob cord. Features a larger field of view, and larger foresight viewing glass. Complete with leather belt loop case. (376911)
Topcon prisms, tribrachs and targets are designed to maintain high accuracy and extended durability. All Topcon prisms feature precision ground glass mounted in a high impact plastic housing. Topcon’s 2 1/2 inch diameter prisms provide for an accuracy of +/- 2 arc seconds.

**SITE POLE**
951828

**STATIONARY HOLDER**
951910 Holder only.

**PRISM**
951803 Prism only.

**PRISM ASSEMBLY**
951920 Complete Assembly includes 951803, 951910 and 951828

**HOLDER**
951914 Tilt holder only. 0/30 offset

**HOLDER W/TARGET**
951913 Tilt holder with target. 0-offset

**TRIPLE PRISM**
951921 Complete Assembly includes 951803, 951911 and 951828

**BAYONET ADAPTER**
373033 Nickel plated 5/8” x 11 thread

**TRIBRACH ADAPTER**
951851 Adapter 2 w/plummet
951852 Adapter 2 w/plummet & 30” vial
951861 Adapter S2 w/o plummet
951865 Adapter S2 w/ 30” vial

**ROTATING TRIBRACH ADAPTER**
8202000

**TRIBRACH**
955501 Tribrach 10 w/plummet
955502 Tribrach 20 w/o plummet

Topcon prisms, tribrachs and targets are designed to maintain high accuracy and extended durability. All Topcon prisms feature precision ground glass mounted in a high impact plastic housing. Topcon’s 2 1/2 inch diameter prisms provide for an accuracy of +/- 2 arc seconds.
SOKKIA PRISMS, HOLDERS, ADAPTERS

**PRISM ASSEMBLY**
- 8726642 SP11A Tilt holder with prism 0/30 offset
- 8726634 SP11 Tilt holder only

**PRISM**
- 8726645 SP01 Prism only.

**TRIBRACH ADAPTER**
- 8726150 AP41 Tribrach Adapter with plummet & 60" vial

**ROTATING TRIBRACH ADAPTER**
- 8202000

**TRIBRACH**
- 8731135 WOA Tribrach w/plummet
- 8731136 WA100 Tribrach w/o plummet

**REFLECTIVE SHEET TARGETS**
- 8634520 RS20N Targets 20 x 20 mm (100 each)
- 8634530 RS30N Targets 30 x 30 mm (49 each)
- 8634550 RS50N Targets 50 x 50 mm (16 each)
- 8634570 RS70N Targets 70 x 70 mm (9 each)

SECO PRISMS

**PRISM ASSEMBLY**
- 8640000 Eclipse Prism assembly. Features water-resistant nitrogen charged prism. 30mm/40mm offset.

**L-BAR MINI PRISM**
- 8660002 Mini prism specific for deformation or mining surveys where a permanent mounting is needed. 25 mm.

**MINI PRISM**
- 8640501 Mini stake-out prism with 2 on-board 130' vials. 30 mm offset.

**EURO-STYLE PRISM SYSTEM**
- 8591001 Mini prism assembly with sectional aluminum poles for different heights. 0/30 mm offset
POLES: PRISM, GPS, RANGE

SECO TWIST-LOCK (A)
- 8550011 Adjustable 8.53 feet/2.60 meters
- 8550021 Adjustable 11.81 feet/3.6 meters
- 8550030 Adjustable 15.25 feet/4.65 meters
- 8550023 Adjustable 5.1 feet/1.55 meters (Mini)

SECO QUICK-LEVER (B)
- 8580110 Adjustable 8.53 feet/2.60 meters
- 8580120 Adjustable 11.81 feet/3.6 meters

SECO SPRING RELEASE (C)
- 8570010 Adjustable 8.53 feet/2.60 meters
- 8570020 Adjustable 11.81 feet/3.6 meters

SECO COMPRESSION-LOCK (D)
- 8560010 Adjustable 8.53 feet/2.60 meters
- 8560020 Adjustable 11.81 feet/3.6 meters
- 8560030 Adjustable 15.25 feet/4.65 meters

SECO MINI STAKEOUT POLE (E)
- 8501000 Fixed 1.28 feet/0.39 meters

CST MAXI-LITE TWIST-LOCK (F)
- Lightweight aluminum sectional pole
  - 374708 Adjustable 8 feet/2.5 meters 2.1 pounds
  - 374712 Adjustable 12 feet/3.6 meters 2.8 pounds
  - 374715 Adjustable 15 feet/4.6 meters 3.8 pounds

CRAIN QUICK RELEASE (G)
- Lightweight "composilite" sectional pole
  - 90280 Adjustable 8 feet/2.5 meters 2.1 pounds
  - 90282 Adjustable 12 feet/3.6 meters 2.8 pounds
  - 90200 Adjustable 15 feet/4.6 meters 3.8 pounds

ASK ABOUT OUR PRISM AND POLE COMBO SPECIAL

SECO GPS ROVER ROD
- 8510800 Carbon fiber rod 2 sections 2.0 meters total
- 8512500 Aluminum rod 2 sections 2.0 meters total

Seco heavy duty aluminum 1.13 inch diameter. White and orange color.

SECO RANGE POLE
- 8515000 12 foot pole Three - 4 foot sections with point
- 8514000 8 foot pole Two - 4 foot sections with point
- 8516000 4 foot pole One 4 foot section without point
### SECO QUICK RELEASE CRADLE

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Designed for these collectors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>85200050</td>
<td>TSC2, Ranger 300X/500X</td>
</tr>
<tr>
<td>85200052</td>
<td>Allegro, JETTce, Explorer, Tracker, FC-2200</td>
</tr>
<tr>
<td>85200053</td>
<td>Recon</td>
</tr>
<tr>
<td>85200054</td>
<td>FC-100, Mobile Mapper CE</td>
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<tr>
<td>85200055</td>
<td>FC-1000, FC-2000</td>
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<td>85200056</td>
<td>GMS-2</td>
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<td>85200057</td>
<td>Archer, Carlson Mini, Victor</td>
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<tr>
<td>85200059</td>
<td>Nomad 800 Series</td>
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<td>85200060</td>
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</tr>
<tr>
<td>85200061</td>
<td>Workabout Pro</td>
</tr>
</tbody>
</table>

Anti-Crush feature locks cradle when tight but goes no further.

### SECO QUICK RELEASE CLAMP

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>85200150</td>
<td>Plain (shown)</td>
</tr>
<tr>
<td>85200151</td>
<td>With 40-min. vial</td>
</tr>
<tr>
<td>85200152</td>
<td>With 20-min. vial</td>
</tr>
<tr>
<td>85200153</td>
<td>With 8-min vial</td>
</tr>
<tr>
<td>85200154</td>
<td>With compass</td>
</tr>
<tr>
<td>85200155</td>
<td>With 40-min. vial and compass</td>
</tr>
</tbody>
</table>

### POLE POINT

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8519000</td>
<td></td>
</tr>
<tr>
<td>8519400</td>
<td>Point with replaceable plumb bob point</td>
</tr>
<tr>
<td>8519405</td>
<td>Lightweight point with replaceable steel tip</td>
</tr>
<tr>
<td>8519200</td>
<td>TOPO SHOE</td>
</tr>
<tr>
<td>8519100</td>
<td>TOPO SHOE</td>
</tr>
<tr>
<td>8518700</td>
<td>GPS QUICK RELEASE ADAPTER</td>
</tr>
<tr>
<td>8511100</td>
<td>GPS QUICK DISCONNECT ADAPTER</td>
</tr>
<tr>
<td>8500820</td>
<td>HEADS UP POLE LEVEL</td>
</tr>
</tbody>
</table>

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GRADUATED COLLAPSIBLE GPS ANTENNA TRIPOD

Seco GPS antenna tripod adjusts to three heights: 2 meters, 1.8 meters, and 1.5 meters. Collapses to 50 inches. Features quick release and twist/locking mechanisms on the legs. Includes removeable 5/8" x 11 adapter and on-board compass. Center staff mechanism rotates 360° for calibrating the 8-minute vial. (8511900)

THUMB RELEASE TRIPOD

The Seco tripod can handle 1 to 1.25 inches diameter poles through the open clamp. Legs extend to 6 feet.

8521905 Carbon-fiber tripod
8521802 Aluminum tripod
8521805 Aluminum mini-tripod (mini only 25" to 35")

BIPOD POLE REST

The Seco 12 inch light-weight bipod pole rest is used to keep a GPS or Robotic pole off the ground when not in use. Open clamp with rubber tipped legs. 8521715

THUMB RELEASE BIPOD

Seco Bipod can handle 1 to 1.25 inches diameter poles through the open clamp. Legs extend to 6 feet.

8521903 Carbon-fiber bipod
8521704 Aluminum bipod
8521704 Aluminum mini-bipod (mini only 25" to 35")

LEG CLIP

Clips to base of any 1 1/4 inch diameter prism or antenna pole. 8521730
LASER ELEVATOR TRIPods

ALUMINUM ELEVATOR TRIPOD (A)

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>80096</td>
<td>NW</td>
<td>NAT96</td>
<td>5/8&quot; x 11</td>
<td>50&quot;</td>
<td>108&quot;</td>
<td>Quick Clamp</td>
</tr>
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</table>

WOOD ELEVATOR TRIPOD (B)

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>367230</td>
<td>CST</td>
<td>60-WDW30ELAZ</td>
<td>5/8&quot; x 11</td>
<td>68&quot;</td>
<td>128&quot;</td>
<td>Wing Nut</td>
</tr>
</tbody>
</table>

GEARED COMPAC TRIPOD (C)

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>331314</td>
<td>Tiffen</td>
<td>COMPAC CG</td>
<td>5/8&quot; x 11</td>
<td>22&quot;</td>
<td>63&quot;</td>
<td>Quick Slide</td>
</tr>
</tbody>
</table>

UNIVERSAL ELEVATOR COLUMN

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Adjustment Range</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>370020</td>
<td>CST</td>
<td>60-ELC20</td>
<td>5/8&quot; x 11</td>
<td>4&quot;</td>
<td>Knob</td>
</tr>
</tbody>
</table>

A must for interior laser levels and automatic levels. This elevator column will fit any 5/8-11 tripod with maximum opening of 90°. Just screw the elevator column, like any instrument, onto the tripod head. The top plate is rotatable.
### ALUMINUM TRIPODS (A)

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>365020</td>
<td>CST</td>
<td>60-ALQC121</td>
<td>1/2&quot; x 20</td>
<td>38&quot;</td>
<td>63&quot;</td>
<td>Quick Clamp</td>
</tr>
<tr>
<td>366025</td>
<td>CST</td>
<td>60-ALQC25</td>
<td>3 1/2&quot; x 8</td>
<td>38&quot;</td>
<td>63&quot;</td>
<td>Quick Clamp</td>
</tr>
<tr>
<td>79999</td>
<td>MP</td>
<td>ST-2</td>
<td>5/8&quot; x 11</td>
<td>38&quot;</td>
<td>63&quot;</td>
<td>Quick Clamp</td>
</tr>
</tbody>
</table>

### WOOD/FIBERGLASS TRIPODS (B)

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>367020</td>
<td>CST</td>
<td>60-WDF20</td>
<td>5/8&quot; x 11</td>
<td>42&quot;</td>
<td>72&quot;</td>
<td>Quick Clamp</td>
</tr>
<tr>
<td>367025</td>
<td>CST</td>
<td>60-WDF25</td>
<td>3 1/2&quot; x 8</td>
<td>42&quot;</td>
<td>72&quot;</td>
<td>Quick Clamp</td>
</tr>
</tbody>
</table>

### WIDE FRAME WOOD TRIPODS (C)

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>8751252</td>
<td>Sokkia</td>
<td>--</td>
<td>5/8&quot; x 11</td>
<td>45&quot;</td>
<td>72&quot;</td>
<td>Wing Nut</td>
</tr>
<tr>
<td>959010</td>
<td>Topcon</td>
<td>TP-10</td>
<td>5/8&quot; x 11</td>
<td>42&quot;</td>
<td>72&quot;</td>
<td>Wing Nut</td>
</tr>
</tbody>
</table>

*Extra Tall Wide Frame Wood Tripod*

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>376030</td>
<td>CST</td>
<td>60-WDW30HV</td>
<td>5/8&quot; x 11</td>
<td>59&quot;</td>
<td>97&quot;</td>
<td>Wing Nut</td>
</tr>
</tbody>
</table>

### FIBERGLASS/COMPOSITE TRIPODS (D)

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>90550</td>
<td>Crain</td>
<td>Tri-Max</td>
<td>5/8&quot; x 11</td>
<td>44&quot;</td>
<td>71&quot;</td>
<td>Quick Clamp</td>
</tr>
<tr>
<td>112300</td>
<td>Dutch Hill</td>
<td>GT-2000A</td>
<td>5/8&quot; x 11</td>
<td>44&quot;</td>
<td>70&quot;</td>
<td>Quick Clamp</td>
</tr>
</tbody>
</table>

*Extra Tall Fiberglass Tripod*

<table>
<thead>
<tr>
<th>MP #</th>
<th>Mfg.</th>
<th>Model</th>
<th>Thread Size</th>
<th>Closed</th>
<th>Open</th>
<th>Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>90560</td>
<td>Crain</td>
<td>Tri-Max</td>
<td>5/8&quot; x 11</td>
<td>54&quot;</td>
<td>91&quot;</td>
<td>Dual Quick Clamp</td>
</tr>
<tr>
<td>8520320</td>
<td>Seco</td>
<td>--</td>
<td>5/8&quot; x 11</td>
<td>84&quot;</td>
<td>132&quot;</td>
<td>Dual Clamp</td>
</tr>
</tbody>
</table>

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TRIPOD ADAPTORS

Adapts 1/2" x 20 tripod to 11/16" x 20 (312507)

Adapts 5/8" x 11 tripod to 11/16" x 20 (312506)

Adapts 5/8" x 11 tripod to 1/4" x 20 (8213201)

Adapts 3 1/2" x 8 tripod to 5/8" x 11 (8212000)

Adapts 5/8" x 11 tripod to 3 1/2" x 8 (8213000)

Adapts 5/8" x 11 tripod to 1/2" x 20 (312509)

G. Provides stability when used on concrete and other slick surfaces. Recommended for use with elevator column tripods. (80183)

DATA COLLECTOR TRIPOD HOOK
8519614 Ranger-X Series
8519615 Recon
8519616 Archer
8519617 Nomad

DATA COLLECTOR TRIPOD BRACKETS
8519607 Allegro, Archer and Explorer
30114 Recon and Nomad.
30653 Ranger-X Series
30654 Ranger (Old style)

WE HAVE OVER 5,000 ITEMS IN STOCK

Index on pages 2-3 • Order form on page 101 • 1-800-LEVEL UP • Surveyor's Shop Vol. 10, No. 1
**SOKKIA RODS**

Unique patented oval shape permits equal size graduations full-length, prevents rod form rolling and is easier to hold. New design with reduced overall length. Sections cushioned with glides to prevent wear. Made from strong, corrosion-proof fiberglass won’t warp or swell. Rods have height measuring gauge on back-side. Female threaded 5/8" x 11 hold on top section.

- 8807334  SK-18 feet  Inches
- 8807344  SK-18 feet  10ths
- 8807338  SK-25 feet  Inches
- 8807348  SK-25 feet  10ths
- 8807349  SK-32 feet  10ths

**SOKKIA/SK DIGITAL MEASURING POLES**

Rugged fiberglass construction with excellent tensile strength. Exact measurements of up to 26 feet or 8 meters. Can be read on the enclosed, sealed digital readout. 4’ 8” closed.

- 8807376  Graduated in ft./in./8ths
- 8807386  Graduated in ft./10ths/100ths
- 8807396  Graduated in m/dm/cm

**SOKKIA MINI ROD/MAXI RULE**

- 8807547  6 1/2 feet  Inches
- 8807548  6 1/2 feet  10ths
- 8807550  9 1/2 feet  Inches
- 8807551  9 1/2 feet  10ths

**MINGOLO PRECISION**

Accepts all major credit cards.

- 5/8” x 11 double male adapter for SK rods (91133)
CRAIN LEVELING RODS

CRAIN Rectangular/Oval Rods

- 90343 SVR-16 10ths
- 90344 SVR-16 Inches
- 90301 SVR-16 10ths/Inches
- 90345 SVR-16/5.0m 10ths/Inches
- 90370 SVR-5.0m .5 cm metric
- 90388 SVR-5.0m Philly metric
- 98010 SVR-25 10ths
- 98011 SVR-25 Inches
- 98015 SVR-25 10ths/Inches
- 98016 SVR-25/7.6m 10ths/metric
- 98014 SVR-7.6m Philly metric

CRAIN Circular Rods

Standard
- 90004 LR-STD-25 10ths
- 90009 LR-STD-25 Inches
- 90014 LR-STD-7.5m Metric

Professional Heavy Duty
- 90022 LR-PRO-25 10ths
- 90024 LR-PRO-35 10ths
- 90026 LR-PRO-45 10ths

CRAIN Rectangular Rods
Heavy duty for laser sensor
- 92041 CR-16 10ths
- 92042 CR-16 Inches
- 92043 CR-5.0 Philly metric
- 92031 CR-20 10ths
- 92032 CR-20 Inches

CRAIN Height Measuring Ruler
Measures clearance up to 50 feet. Direct reading at eye level. Adapter size is 1/4" x 20 for accessories. Feet & metric graduations. Rugged, non-conductive fiberglass construction.

- 90180 CMR-25 feet/7.6 meters
- 90181 CMR-36 feet/11 meters
- 90182 CMR-50 feet/15.2 meters

5/8" x 11 double male adapter for LR-Series (91133)

Prism adapter for SVR-Series (91258)

MOST ORDERS ARE SHIPPED UPS THE NEXT DAY
TELESCOPING ALUMINUM RODS

Aluminum telescoping rods are made of a light and durable aluminum alloy. The anodized sections are imprinted with special weather resistant and corrosion resistant inks.

Tight tolerances on extruded aluminum sections allow for smooth extension and prevent unnecessary clattering and sloppiness. The sectional joints are injected molded from a durable lightweight impact-resistant plastic.

Rods are equipped with reliable and wear-resistant polycarbonate buttons that lock each section. Easy-to-read graduations and a special measuring scale on the backside permit users to read height at eye level.

163100 16', 5 section. feet/10ths
163101 16', 5 section. feet/8ths
163105 5m, 5 sections, metric/cm

SNAP-ON ROD LEVEL

Fits all aluminum rods (163102)

ROD LEVEL (3376750)

KESON POCKET ROD

Simply remove the coated steel blade from the case and use as quick leveling rod. Graduated on both sides with a non-glare surface.

13610 6 1/2 feet 10ths
13618 6 1/2 feet inches

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ASH/ALUMINUM
STANDARD DE ROD
The rods extend 10 ft. and retract to 5.4 ft. The front features a graduated, endless 10-foot stainless steel band which runs over Derlin end rollers. The latch in the back locks the band in any position.

8750220  Boldface 10ths/100ths
8760220  Cut & fill 10th/100ths

ASH/ALUMINUM DE LASER ROD
The rods extend 10 ft. and retract to 5.4 ft. The front features a graduated, endless 10-foot stainless steel band which runs over Derlin end rollers. The latch in the back locks the band in any position. These come with a side rail for connecting an optional bracket.

8750221  Boldface 10ths/100ths
8760221  Cut & fill 10th/100ths

BRACKETS FOR LASER RAIL
85079038  Topcon LS-30, LS-50, LS-70
85079054  Laser Alignment Rod-Eye 6
85079055  Spectra 1275, Apache 34-44
85079057  Laser Alignment Rod-Eye 8
85079058  Laser Alignment Rod-Eye Pro, Apache 64
85079059  Trimble HR500, CR 600

REPLACEMENT BANDS FOR DE RODS
85077053L  Bold face 10ths
85077053CF  Cut & fill 10ths

DIRECT ELEVATION ROD CARRYING CASE
Fits all above rods  (8816601)

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**50 TAPES & RULERS**

**LUFKIN HI VIZ POCKET TAPES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Lufkin #</th>
<th>Blade Length</th>
<th>Graduation</th>
<th>Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>46333</td>
<td>HV1312D</td>
<td>3/4&quot;</td>
<td>12 ft</td>
<td>Tenths, inches</td>
</tr>
<tr>
<td>48513</td>
<td>HV1034DM</td>
<td>3/4&quot;</td>
<td>12 ft/3.7m</td>
<td>Tenths, metric</td>
</tr>
<tr>
<td>48959</td>
<td>HV1035CME</td>
<td>3/4&quot;</td>
<td>16 ft/5m</td>
<td>Inches/metric</td>
</tr>
<tr>
<td>48958</td>
<td>HV1035CM</td>
<td>3/4&quot;</td>
<td>5m</td>
<td>Metric</td>
</tr>
<tr>
<td>46335</td>
<td>HV1425D</td>
<td>1&quot;</td>
<td>25 ft</td>
<td>Tenths, inches</td>
</tr>
<tr>
<td>40554</td>
<td>HV1048CM</td>
<td>1&quot;</td>
<td>8m</td>
<td>cm, mm</td>
</tr>
<tr>
<td>48512</td>
<td>HV1048DM</td>
<td>1&quot;</td>
<td>25 ft/7.6m</td>
<td>Tenths, metric</td>
</tr>
<tr>
<td>40555</td>
<td>HV1048CME</td>
<td>1&quot;</td>
<td>26 ft/8m</td>
<td>Inches/metric</td>
</tr>
<tr>
<td>44200</td>
<td>HV1425ED</td>
<td>1&quot;</td>
<td>25 ft</td>
<td>Tenths only</td>
</tr>
<tr>
<td>40856</td>
<td>HV1433DM</td>
<td>1&quot;</td>
<td>33 ft/10m</td>
<td>Tenths/metric</td>
</tr>
<tr>
<td>40852</td>
<td>2133D</td>
<td>1&quot;</td>
<td>33 ft</td>
<td>Tenths, inches</td>
</tr>
<tr>
<td>44201</td>
<td>EL50D</td>
<td>1&quot;</td>
<td>50 ft</td>
<td>Tenths, inches</td>
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</tbody>
</table>

**SOKKIA MINI ROD/MAXI RULE**

<table>
<thead>
<tr>
<th>Item</th>
<th>Length</th>
<th>Graduation</th>
<th>Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>8807547</td>
<td>6 1/2 ft</td>
<td>Tenths, inches</td>
<td></td>
</tr>
<tr>
<td>8807548</td>
<td>6 1/2 ft</td>
<td>10ths</td>
<td></td>
</tr>
<tr>
<td>8807550</td>
<td>9 1/2 ft</td>
<td>Tenths, inches</td>
<td></td>
</tr>
<tr>
<td>8807551</td>
<td>9 1/2 ft</td>
<td>10ths</td>
<td></td>
</tr>
</tbody>
</table>

**RHINO FIBERGLASS RULER**

Heavy duty 6 foot folding ruler lasts up to 4 times longer with permanent engraved graduations.

<table>
<thead>
<tr>
<th>Item</th>
<th>Graduation</th>
<th>Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>731619</td>
<td>Tenths, inches</td>
<td></td>
</tr>
<tr>
<td>746199</td>
<td>Tenths, metric</td>
<td></td>
</tr>
</tbody>
</table>

**ARCHITECT ESTIMATING SCALE**

Blade is 1/4" x 5' -- with 1/8" one side, 1/4" other side

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>45848</td>
<td>Lufkin W393 (automatic blade return)</td>
<td></td>
</tr>
<tr>
<td>695025</td>
<td>Pacific Arc EST 5025RM (manual return)</td>
<td></td>
</tr>
</tbody>
</table>

**FIBERGLASS APPRAISER’S TAPES**

Long lasting -- even after daily abuse. Special hook-end helps assure accuracy. Inexpensive. Open reel.

<table>
<thead>
<tr>
<th>Item</th>
<th>Length</th>
<th>Graduation</th>
<th>Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>8845174</td>
<td>100 ft</td>
<td>Feet, inches</td>
<td>1/8th</td>
</tr>
<tr>
<td>8845274</td>
<td>100 ft</td>
<td>Feet, tenths</td>
<td>1/100th</td>
</tr>
<tr>
<td>8845674</td>
<td>100 ft</td>
<td>Dual graduations</td>
<td>One side inches, one side tenths</td>
</tr>
<tr>
<td>8845184</td>
<td>100 ft</td>
<td>Refill</td>
<td>Inches</td>
</tr>
<tr>
<td>8845284</td>
<td>100 ft</td>
<td>Refill</td>
<td>Tenths</td>
</tr>
<tr>
<td>8845674</td>
<td>100 ft</td>
<td>Refill</td>
<td>Inches/tenths</td>
</tr>
</tbody>
</table>

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LUFKIN PEERLESS
Chrome and yellow clad. 1/4"/6mm wide and .012" thick line. Designed for engineers and surveyors who prefer a 4-arm reel. Line is subdivided throughout and is easily removed from the reel. Reel is nickel plated, 4 arm, with rollers in each arm for smooth winding. Open design construction aids in drying line and clearing out dirt. Long, easy action winding handle locks line in any position.

CHROME CLAD
45382 C1276 1/4 x 100' Inches
45384 C1276D 1/4 x 100' Tenths
45386 C1278 1/4 x 200' Inches
45388 C1278D 1/4 x 200' Tenths
46029 C2730mm 1/4x30m Metric
46030 C2750mm 1/4x50m Metric

YELLOW CLAD
45779 Y1276 1/4 x 100' Inches
45780 Y1276D 1/4 x 100' Tenths
45783 Y1278 1/4 x 200' Inches
45784 Y1278D 1/4 x 200' Tenths
45787 Y1279 1/4 x 300' Inches
45788 Y1279D 1/4 x 300' Tenths

LUFKIN FIBERGLASS
REEL TAPES
22404 1/2 x 50' Tenths FE050D
22402 1/2 x 100' Tenths FE100D
22408 1/2 x 150' Tenths FE150D
22406 1/2 x 200' Tenths FE200D
22412 1/2 x 300' Tenths FE300D
22403 1/2 x 50' Inches FE050
22405 1/2 x 100' Inches FE100
22407 1/2 x 150' Inches FE150
22409 1/2 x 200' Inches FE200
22411 1/2 x 300' Inches FE300

LUFKIN FIBERGLASS
REFILLS
45353 1/2 x 50' Tenths 0703
45357 1/2 x 100' Tenths 0706
45467 1/2 x 150' Inches 01707
46033 1/2 x 200' Inches 01708
46037 1/2 x 300' Inches 01709
45355 1/2 x 50’ Tenths 0703D
45359 1/2 x 100’ Tenths 0706D
45469 1/2 x 150’ Tenths 01707D
46034 1/2 x 200’ Tenths 01708D
46038 1/2 x 300’ Tenths 01709D

LUFKIN PEERLESS TAPE REFILLS
CHROME CLAD REFILLS
45383 OC1276 1/4 x 100' Inches
45385 OC1276D 1/4 x 100’ Tenths
45387 OC1278 1/4 x 200' Inches
45389 OC1278D 1/4 x 200’ Tenths
46374 OC2730mm 1/4x30m mm
46373 OC2750mm 1/4x50m mm

YELLOW CLAD REFILLS
45781 RY1276 1/4 x 100’ Inches
45782 RY1276D 1/4 x 100’ Tenths
45785 RY1278 1/4 x 200’ Inches
45786 RY1278D 1/4 x 200’ Tenths
45789 RY1279 1/4 x 300’ Inches
45790 RY1279D 1/4 x 300’ Tenths

LUFKIN FIBERGLASS
REEL TAPES
22404 1/2 x 50’ Tenths FE050D
22402 1/2 x 100’ Tenths FE100D
22408 1/2 x 150’ Tenths FE150D
22406 1/2 x 200’ Tenths FE200D
22412 1/2 x 300’ Tenths FE300D
22403 1/2 x 50’ Inches FE050
22405 1/2 x 100’ Inches FE100
22407 1/2 x 150’ Inches FE150
22409 1/2 x 200’ Inches FE200
22411 1/2 x 300’ Inches FE300

LUFKIN FIBERGLASS
REFILLS
45353 1/2 x 50’ Tenths 0703
45357 1/2 x 100’ Tenths 0706
45467 1/2 x 150’ Inches 01707
46033 1/2 x 200’ Inches 01708
46037 1/2 x 300’ Inches 01709
45355 1/2 x 50’ Tenths 0703D
45359 1/2 x 100’ Tenths 0706D
45469 1/2 x 150’ Tenths 01707D
46034 1/2 x 200’ Tenths 01708D
46038 1/2 x 300’ Tenths 01709D
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**REFILLS FOR FIBERGLASS OPEN REEL TAPES**

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NYLON-COATED STEEL BLADE OPEN REEL TAPES

3/8" wide, printed on one side in feet, inches.
13480  NR18100  100' w/Hook
13482  NR18200  200' w/Hook
13483  NRS18300  300' w/Hook

3/8" wide, printed on one side in feet, tenths.
13401  NR10100H  100' w/Hook
13402  NR10200H  200' w/Hook
13403  NRS10300H  300' w/Hook

3/8" wide, printed on one side in metric, mm
13530  NR30ME  30m w/Ring
13450  NR50ME  50m w/Ring
13460  NR60ME  60m w/Ring

13430  NR30MH  30m w/Hook
13451  NR50MH  50m w/Hook
13452  NR60MH  60m w/Hook

REFILLS FOR NYLON-COATED STEEL BLADE OPEN REEL TAPE

3/8" wide, printed on one side in feet, inches.
13580  NRF18100  100' w/Hook
13582  NRF18200  200' w/Hook

3/8" wide, printed on one side in feet, tenths.
13501  NRF10100H  100' w/Hook
13502  NRF10200H  200' w/Hook

3/8" wide, printed on one side in metric, mm
13320  NRF30ME  30m w/Ring
13322  NRF50ME  50m w/Ring
13324  NRF60ME  60m w/Ring

13321  NRF30MH  30m w/Hook
13323  NRF50MH  50m w/Hook

CHAINING PIN SET

Surveyors Arrows 14" long. 3/16" hardened round steel.
364501  Arrow set of 11
364511  Carrying Ring
364506  Leather Arrow Quiver

HIP WALK CHAIN

Easy, one-person distance measurement. Tie line to any object and walk away. Meter shows distance continuously. At end of measurement, clip biodegradable line which is easily replaced. High-impact plastic housing. Meter records up to 99,999 feet and is reset at the touch of a button. Accuracy of measurement ±0.2%
202000  Hip chain with 4,500’ of line.
202006  9,000’ white replacement line. 10 rolls per bag.
202005  9,000’ orange replacement line. 10 rolls per bag.
Three line display shows results of different measurements. Shortcut keys for easy access to frequently used function. Measuring range from 2 inches to 197 feet; accuracy ± 1/16 inch.

Tilt measurement 45° capability. Multi function calculates area, volume, room dimensions and various types of Pythagorean functions. Measuring range from 0.16 feet to 328 feet; accuracy ± 0.04 inch.

The integrated digital Pointfinder with a 4x zoom and 2.4" color display. Tilt sensor range up to ± 45°. Measuring range of 0.16 ft up to 650 ft. Typical accuracy ± 0.06 inch. Pythagorean functions.

The integrated digital Pointfinder with a 4x zoom and 2.4" color display. Tilt sensor range 360°. Lightweight, aluminium extension tripod fits all Disto models with 1/4" x 20 thread.

Lightweight, compact and features line of sight "thru-the-lens" viewing. Measurements are shown in the display, you never have to take your eyes off the target! Take distance measurements up to 3,280' (1,000m) away without a reflective target. Results are displayed in feet, yards, or meters. An integrated tilt sensor allows you to measure horizontal or vertical distance and calculate an object's height instantly by using the built-in three-shot routine. Accuracy, ±1 foot; Inclination: Accuracy, ±0.25°.

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**CLS SERIES**

**RDX SERIES**

*MANY ACCESSORIES AVAILABLE ON ALL MODELS*

**Speaker Mic** (53862)

**VOX Headset w/Boom Mic** (53865)
### MM-30 SERIES
A versatile, lightweight wheel suitable for both indoor and outdoor work. Wheel circumference 3 feet, diameter 11.25 inches. Counter records up to 10,000 feet or 10,000 meters *(Subtracts when rolled backwards)*. Insert-and-lock handle is 40" inches, collapses to 22.25 inches.

<table>
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<td>703941</td>
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### 300 SERIES
Precision counter is completely sealed, always in full view of the operator. All steel construction with a 5-digit ratchet counter. Wheel circumference 3 feet, diameter 11.5 inches. Measures up to 100,000 feet or meters without resetting. Insert-and-lock handle is 41" inches, collapses to 22.25 inches.

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### MM-12 SERIES
Counter records up to 10,000 feet or 10,000 meters *(Subtracts when rolled backwards)*. Telescopes to 40.5 inches, collapses to 19.25 inches.

<table>
<thead>
<tr>
<th>Code</th>
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### MM-12 TWIN SERIES
Counter records up to 10,000 feet or 10,000 meters *(Subtracts when rolled backwards)*. Telescopes to 40.5 inches, collapses to 19.25 inches.

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### 400 SERIES
All steel construction with a 5-digit ratchet counter. Wheel circumference 4 feet, diameter 15.25 inches. Measures up to 100,000 feet or meters without resetting. Folding handle extends to 45.75 inches, collapses to 29 inches.

<table>
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<th>Code</th>
<th>Description</th>
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### 415 SERIES
All steel construction with a 5-digit ratchet counter. Solid wheel with measurement units on disk. Wheel circumference 4 feet, diameter 15.25 inches. Measures up to 100,000 feet or meters without resetting. Folding handle extends to 45.75 inches, collapses to 29 inches.

<table>
<thead>
<tr>
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### 623 SERIES
All steel construction with a 5-digit ratchet counter. Wheel circumference 6 feet, diameter 23 inches. Measures up to 100,000 feet without resetting. Folding handle extends to 47.125 inches, collapses to 24.5 inches.

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### 112 SERIES
Zinc die cast body. Counter records up to 10,000 feet. Telescopes to 40.125 inches, collapses to 18.75 inches.

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DIGITAL MEASURING WHEELS

DIGI-ROLLER PLUS II
(746425)
This digital measuring wheel allows you to easily calculate and store intermediate and total lengths and also find square areas, cubic volumes, and more for up to nine different areas.

Measurements can be displayed in feet-inches, decimal feet, decimal inches, yards, meters, and acres. The AutoCount feature counts preset distance increments, or use the push-button counter for totaling of items. A built-in user memory accumulates counts or measurements. Cubic volumes are calculated from rolled length, width, and height. Measurements are displayed to 999,999.9 feet (or meters, yards, inches) with full display spell-outs.

Other features include backlit LCD display, 1m circumference measuring wheel, convenient kickstand which folds out of the way when not needed, and start/stop key to prevent accidental measurements. One-year manufacturer’s warranty. Wheel circumference: 1m (39.37 inches). Accuracy: ±0.5%. Power: 4 AAA batteries (included).

KESON MP401E PROFESSIONAL
(31401)
The only electronic wheel with a steel frame!

Digital display shows measurements up to 99,999 ft., 11 in. or 99,999.9 in tenths and metric. Magnetic sensors ensure reliable input. Other features include a backlight LCD, auto shut-off, add wheel radius for wall-to-wall measuring, 3/4” steel tubing frame, a built-in kickstand, and the handle folds down for compact storage.


THOUSANDS OF ITEMS IN STOCK
-- READY TO SHIP
One hand operation makes finding faster, providing both audio and visual (XTd model) indication of the magnetic fields of ferrous objects -- property markers, manholes, septic tanks, well casings, valve boxes, cast iron pipes, steel drums, unexploded ordnance -- up to sixteen feet below the surface. Operates in both retracted and extended modes with fingertip control of volume and sensitivity. Has a quick change battery compartment and battery indicator on both models. **Rugged, reliable and a 7-year warranty.** Both the GA-92XTi and the GA-92XTd are standard with a custom case designed to withstand the rigors of field use and a carrying holster.
Magna-Trak magnetic locators take technology, one step into the future by including a multitude of convenience features you won't find anywhere else; features like an LCD visual display and/or audio tone, a lightweight, easy-grip design, and water resistant cases. Magna-Trak locators also feature easy battery access and outstanding battery life, and they're backed by a 5-year warranty!

**Features:**
- Length: 42”  •  Weight: 3 lbs./1.3 kg.
- Waterproof up to housing, water-resistant housing
- Signal indicating LCD meter (on 100 and 102 models only) and audio tone (all models)
- Handle, battery compartment
- Earphone jack and battery charger jack available
- Controls: On/Off, Volume, Sensitivity
- Strong aluminum tube  •  Hard rubber tip
- Battery life approximately 100 hours

---

**Magna-Trak 100™**

The Magna-Trak 100’s LCD indicator offers a digital and bar graph display, in addition to a standard audio tone, to precisely identify the target object, especially in noisy, congested areas. Features a visual reminder when batteries are low. The light weight 3 lbs./1.4 kg Magna-Trak 100 features simple, waterproof, membrane pad push-button operation with an easy-grip design. The Magna-Trak 100 offers easy battery access and outstanding battery life (approximately 200 hours) and it's backed by a five-year warranty. (379550)

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**Magna-Trak 101™**

Our new low-cost Magna-Trak 101 magnetic locator provides excellent field performance at a budget price! It features quick-action, two panel control knob operation to adjust sensitivity and volume. The new Magna-Trak 101 magnetic locator is streamlined version of the Magna-Trak 100. The Magna-Trak 101 features all the same components as the 100, except the LCD meter display and membrane switch action. The operation of this locator is dependent upon only two rotary panel control knobs: sensitivity and volume. (379555)

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**Magna-Trak 102™**

The new Magna-Trak 102 magnetic locator provides the same basic performance features as the Magna-Trak 100. With the addition of our new push-button "erase" feature, greater flexibility is achieved and performance is enhanced. When a magnetic disturbance, such as a metal fence, is confronted, simply press the "erase" button and the disturbance is erased for continued searching without interference. No need to reduce the sensitivity; the Magna-Trak 102 always returns to perfect magnetic balance when the "erase" button is pressed. The Magna-Trak 102 locator also includes the new power line indicator feature. The LCD panel visually indicates that a power line is present. (CAUTION: This feature is an aid only and is not intended for locating buried power lines.) (379557)
60 BAGS AND CASES

SINGLE PRISM BAG
Heavily padded for single prism assemblies. Interior size: 5” x 7” x 2” (8807000)

TRIPLE PRISM BAG
Heavily padded for triple prism assemblies. Interior size: 9” x 7” x 2” (8808000)

JUMBO TRIPLE PRISM BAG
Heavily padded for triple prisms and prism targets or tribrachs. Interior size: 10” x 9.5” x 3” (8808100)

TALL TRIPLE PRISM BAG
Heavily padded for vertical triple prism assemblies. Interior size: 15” x 8” x 2” (8813000)

SUPER JUMBO BAG
Heavily padded for a tilting prism with tribrach and adaptor. Interior size: 12” x 12” x 3” (8808200)

TRIBRACH CASE
Heavily padded to hold a tribrach. Interior size: 6” x 6” x 2” (8807100)

Corporate charge accounts are available

Index on pages 2-3 • Order form on page 101 • 1-800-LEVEL UP • Surveyor’s Shop Vol. 10, No. 1
**HEAVY DUTY STAKE BAG**
Made with Rhinotek material. Designed to hold stakes or rebar. Features include hammer loop, adjustable strap and brass grommet drain holes.
- **8809020**  18 inch
- **8809120**  18 inch w/partition
- **8809220**  24 inch
- **8809620**  24 inch w/partition

**STANDARD STAKE BAG**
Designed to hold stakes or rebar.
- **8809000**  18 inch
- **8809100**  18 inch w/partition
- **8809200**  24 inch
- **8809600**  24 inch w/partition

**HEAVY DUTY LATH BAG**
Made with Rhinotek material. 
- **8810020**  36 inch 
- **8810120**  48 inch 

**STANDARD LATH BAG**
- **8810000**  36 inch 
- **8810100**  48 inch 

**STAKE FLAG BAG**
8809300  for 21 inch flags
8809400  for 30 inch flags

**STANDARD LATH CARRIER**
Bag opens full length. Includes paint can holster. Made with Rhinotek material. Size: 9” x 38”
(8810201)
**BAGS AND CASES**

- **PRISM POLE BAG** (8816000)
- **RANGE POLE BAG** (881700)
- **GPS ROVER BAG** (8816200)
- **PRISM POLE TRIPOD BAG**
  Prism pole tripod bags holds a prism pole with a tripod attached. Made with Rhinotek (8818020)
- **HEAVY DUTY TRIPOD BAG** (8815020)
- **GPS ANTENNA TRIPOD BAG** (8815400)
DATA COLLECTOR CASE
Nylon case holds Ranger, Allegro, Explorer series data collectors. (30218)

DATA COLLECTOR CASE
Nylon case holds Recon and Nomad, data collectors. (30216)

DATA COLLECTOR CASE
Cordura case holds Recon and Nomad, data collectors with the compact flash cap installed. Size: 1" x 3.25" x 9" (8824010)

CELL PHONE POLE CASE
Secures your cell phone to any survey pole without slipping. Size: 5" x 2.5" x 1.5". (8814322)

HP-48GX HARD ENVIRONMENTAL CASE
Hard plastic case which contains a 9-pin serial port. (30217)
Replacement top cover (30125)

HP-48GX SOFT ENVIRONMENTAL CASE
Nylon case with see-through cover for keypad (91450)

MONSTER GEAR BAG
Canvas bag measures 30" x 14" x 20" (8810610)
PELICAN EQUIPMENT CASES

UNBREAKABLE • CRUSHPROOF • WATERTIGHT
DUSTPROOF • LIFETIME GUARANTEE

Protect and transport your valuable equipment in these airtight, watertight, dent-proof cases. Constructed of injection molded, high-impact thermal plastic, each Pelican Case has an O-Ring seal that guarantees an absolute protective seal. A one-turn E-Z purge knob allows quick air equalization after altitude or temperature changes. Other features include a built-in heavy duty handle, heavy duty latches and an integral locking flange. Interior has layers of “Pick ‘N Pluck” polyester foam for customized equipment fitting.

MP # Pelican Model Interior Dimension (L x W x D)
741150 1150 Case 8.18” x 5.68” x 3.62”
741400 1400 Case 11.81” x 8.87” x 5.18”
741450 1450 Case 14.62” x 10.18” x 6”
741500 1500 Case 6.75” x 11.18” x 6.12”
741550 1550 Case 18.43” x 14” x 7.62”
741600 1600 Case 21.43” x 16.5” x 7.87”
741650 1650 Case* 28.5” x 17.37” x 10.5”

*with retractable handle and wheels

TOTAL STATION BACKPACK

Heavy-duty field case replaces the hard cases that come with total stations. Constructed of water-resistant Cordura nylon with 2” thick padding on all sides, the case also works as a backpack for most total stations. Heavy-duty Rhinotek bottom for increased durability. Orange only.

8812000 Front load total station backpack, w/top accessory compartment.
8812200 Same as 8812000, but includes aluminum frame
8812100 Top load total station backpack, w/side accessory pockets.
8812300 Same as 8812100, but includes aluminum frame

ROBOTICS BACKPACK

Designed for robotics, featured double-zipped, top-loading station compartment lined with rigid foam padding, two side pockets for cables, and one from battery pocket. Free standing aluminum frame. Comfortable padded belt with lumbar back support system, adjustable shoulder straps. Rhinotek bottom for increased durability. Available in Flo-green only. 8813400

MANY SIZES AND COLORS AVAILABLE
SURVEYORS LEATHER 7 POCKET POUCH

Top grain saddle leather with wide preformed pockets for standard field books; special pocket for all 6-ft box rules, 2 pockets for markers, tapered holster for plumb bobs to 16 oz. A snap-lid front pocket and an open end side pocket with space for 10 marking pins 6” x 8”.

(224865)

5 POCKET LEATHER TOOL POUCH

Leather construction with 8” x 7” and 6” x 4” pouches. Storage slots for markers and tools. Leather loop for hammer or axe. A 12 foot tape may also be clipped over the loop. Sold without belt.

(226837)

SPRAY CAN HOLDER WITH ACCESSORY POCKETS

Cordura construction. Features four pockets for pens/pencils, folding ruler and a heavy web strap.

(8809810)

SURVEYORS TOOL POUCH WITH BELT

Features 9” x 2” x 1” pocket with two vent grommets. Large pocket is lined with two layers of Curdura. Smaller front pocket is made of Rhinotek. Includes hammer loop and marker storage. Webbed belt adjust to 50 inch waist.

(8804630)

HEAVY DUTY BUCKET BAG

Heavy duty, water resistant bucket bag is reinforced at all wear point. Has plenty of pockets.

(8809550)

FLAGGING DISPENSER

Canvas case holds up to 4 rolls of flagging. Strap can be used around waist or over shoulder.

(8802500)

WEB BELT

Heavy duty work belt. Adjust to any size. Strong heavy snap-on belt buckle assembly can be used for carrying scabbards and tool pouches.

(224880)

LEATHER WORK BELT

Heavy duty work belt. Adjust from 29” to 46”. Two inches wide. For carrying scabbards and tool pouches.

(224877)
POCKET WEATHER TRACKER
Using a built-in digital compass, the Kestrel 4500 measures wind direction in addition to wind speed and effective crosswind, headwind, and tailwind. Simply point the instrument in the direction of the wind to instantly obtain wind speed and wind direction in degrees and cardinal compass points. Readings can be stored in the 2,000 data-set memory.

In addition to taking wind measurements, the unit also measures air, water, and snow temperature; wind chill; relative humidity; dewpoint; heat stress index; barometric pressure; altitude; density altitude; and wet bulb temperature. Measurements are shown on the backlit display.

You can easily customize screens to display user-selected measurements as well as graph and recall trends. The waterproof Kestrel 4500 floats and includes a protective pouch, neck and wrist lanyards, and 2 AAA batteries. (89545)

SUN POCKET
ALTIMETER/BAROMETER
Indicates altitude accurately up to 15,000 feet plus shows barometric pressure. (43316)

MAGNETIC SURFACE
THERMOMETER
- 189285 0° to +150°F
- 189286 0° to +250°F
- 189287 0° to +500°F

EXTECH MINI IR THERMOMETER
Non-contact infra-red thermometer with built-in laser pointer identifies target area. Backlit display. Temperature range: -4°F to +500°F. (89470)

MAXIMUM/
MINIMUM
THERMOMETER
Indicates the lows and highs of any time period you wish to monitor and current temperature. Fahrenheit scale - range: -40° to 130°F, 2° divisions. (8800600)

ARMOR CASE
THERMOMETER
Open face thermometer that is 5.5" long with a range from -40° to +120°F in 2° increments. (8800613)

BI-THERM THERMOMETERS
5" stem with pointed tip. Measures temperature with a bi-metallic coil attached to an indicator needle.
- 8800650 1” dial -40° to +160°F w/case
- 8800660 1” dial 0° to +220°F w/case
- 8800672 2” dial 0° to +550°F w/o case
### COMPASSES

#### SUUNTO TANDEM COMPASS/CLINOMETER
Suunto tandem compass/clinometer has a rugged aluminum housing. Clinometer scale is graduated in percent and degree; compass scale is in azimuth. (31192)

#### SUUNTO KB-14 COMPASS
Heavy-duty impact and corrosion resistant aluminum housings are flat and compact.

- **KB-14 w/Optical Adjustment**
  - 37010 0-360° w/reciprocal scale
  - 37015 Quadrant 0-90°

- **KB-14 w/Declination and Optical Adjustment**
  - 37049 0-360° w/o reciprocal scale
  - 37052 Quadrant 0-90°

- 37002 Protective rubber case

#### CLINOMETER
Suunto clinometer PM5/360PC is used to measure heights and slopes. Metal housing with percent and degree scales. (43830)

#### KB-20 COMPASS
Suunto compass KB-20 features high-impact plastic housing. 0 to 360°. (37021)

#### SUUNTO NAVIGATOR COMPASS/CLINOMETER
Suunto compass/clinometer MC2D has sighting mirror with luminous points. Clinometer scale is graduated in percent and degree; compass scale is in azimuth. (37182)

#### BRUNTON DIGITAL COMPASS
Brunton digital compass features back-lit display, bubble level for increased accuracy, forward and reverse bearing, declination adjustment, temperature display, time/ date. Resolution 1°, Accuracy ±2°

- 37501 Nomad V2 Digital Compass
- 37508 Nomad V2 Pro (same as 37501 but includes) altimeter and barometer

#### COMPASS
Brunton Classic 9020G compass is graduated 0 to 360° in 2° units. Adjustable declination. (37084)

#### POCKET TRANSIT
Induction-damped international waterproof pocket transit can be used anywhere in the world without rebalancing.

- 37206 Azimuth 0-360°
- 37208 Quadrant 0-90°
TRUE CENTER
BRASS PLUMB BOBS
Plumb bobs are precision machined from solid brass, to assure true plumb for accurate measurement. The durable ASA standard points are made of hardened steel and the screw caps are of oxidized brass. Points and caps are interchangeable. Each plumb bob contains storage area for a spare point within the cap for easy replacement in the field.

<table>
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<th>Weight</th>
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<td>7411497</td>
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<tr>
<td>7411498</td>
<td>8 oz.</td>
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<td>7411499</td>
<td>10 oz.</td>
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<td>7411550</td>
<td>12 oz.</td>
</tr>
<tr>
<td>7411551</td>
<td>14 oz.</td>
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<td>7411552</td>
<td>16 oz.</td>
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<td>7411553</td>
<td>18 oz.</td>
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<td>24 oz.</td>
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<td>32 oz.</td>
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<td>7411556</td>
<td>80 oz.</td>
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<tr>
<td>747435</td>
<td>Plumb Bob Points</td>
</tr>
<tr>
<td>747466</td>
<td>Plumb Bob Caps</td>
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</table>

GAMMON REEL
Drop-plumb bob to desired position and stop with finger pressure in usual way. Take two turns on small boss and target hangs with plumb bob true over the point. No more winding, broken or muddy string. When released, “swish” -- it’s back at the plumb bob.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>740001</td>
<td>6 ft. red and white target</td>
</tr>
<tr>
<td>740012</td>
<td>12 ft. white and orange target</td>
</tr>
<tr>
<td>740130</td>
<td>12 ft. black and orange target</td>
</tr>
<tr>
<td>740020</td>
<td>Orange braided nylon string 24 yards</td>
</tr>
<tr>
<td>740021</td>
<td>Lime braided nylon string 24 yards</td>
</tr>
<tr>
<td>740022</td>
<td>Glo red braided nylon string 24 yards</td>
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</table>

PLUMB BOB TARGETS
8812620 Plastic target notched
8812625 Plastic target notch translucent
8812640 Quik-Stik targets with paper back that peels off and sticks to any surface. Package of 25

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8812620</td>
<td>Plastic target notched</td>
</tr>
<tr>
<td>8812625</td>
<td>Plastic target notch translucent</td>
</tr>
<tr>
<td>8812640</td>
<td>Quik-Stik targets with paper back that peels off</td>
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</table>

PLUMB BOB SHEATH
Sheaths are made of top grain leather, heavy-duty stitched and slotted for belt attachment.

<table>
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<tr>
<td>745429</td>
<td>8-12 oz.</td>
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<tr>
<td>745432</td>
<td>14-16 oz.</td>
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<tr>
<td>745436</td>
<td>18-24 oz.</td>
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<tr>
<td>745438</td>
<td>32 oz.</td>
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TAC BALL
Convenient rubber ball used as a pin cushion for holding stake tacks. Includes a belt loop. (748115)

GAMMAGNET
Versatile magnetic case which holds a 12 foot gammon reel to any steel surface (740015)
Features one 3-prong grounded AC outlet, quiet operation and automatic shutdown in over temperature, overload, and low battery conditions. Ideal for cell phones, laptop computers, and more. Operates from 12V outlet or cigarette lighter socket in your vehicle. (2271)
### J. L. DARLING “RITE IN THE RAIN” ALL WEATHER FIELD BOOKS

<table>
<thead>
<tr>
<th>Style</th>
<th>MP #</th>
<th>Mfg #</th>
<th>Cover</th>
<th>Binding</th>
<th>Size</th>
<th>Leaves</th>
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<td>300F</td>
<td>Fabrikoid</td>
<td>Book</td>
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<td>80</td>
<td>8 vert. 1”</td>
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<td>310F</td>
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<td>Book</td>
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<td>Fabrikoid</td>
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<td>Polydura</td>
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<td>4 3/4 x 7 1/2</td>
<td>80</td>
<td>8 vert. 1”</td>
</tr>
</tbody>
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* Pages are numbered

### ALL-WEATHER COPIER PAPER
200 sheets per pack. "Rite in the Rain" paper. 20# bond weight. 8 1/2 x 11 size. Not for ink-jet printers. Copy or laser print both sides. (218511)

### ALL-WEATHER PEN
Ball point pen writes underwater and upside down with temperature as low as -50°F. Black ink. (21037)

### ALL-WEATHER LOOSE LEAF
100 sheets per pack. "Rite in the Rain" paper. 4 5/8 x 7. 6 hole punched. 21302 A Style -- 8 Vertical Lines/ Inch  21312 B Style -- 6 Vertical Col.

### ALL-WEATHER GRID SHEETS
2 pads with 50 sheets per pad. "Rite in the Rain" paper. 8 1/2 x 11 size. 3 hole punched. Page pattern is cross section 1/10" grid. (211110)
ELAN FIELD BOOKS

Made with white ledger paper, Elan's extra-stiff, high-visibility field books. This book is published on a fine 50% cotton-content ledger paper, specially treated for maximum archival service, and protected by a water-resistant surface sizing.

<table>
<thead>
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<th>Mfg #</th>
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Pocket Size

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<td>Book</td>
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6-RING BINDERS

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<td>E323</td>
<td>Polyethylene</td>
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<td>1/2&quot;</td>
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LOOSE LEAF FILLER PAPER

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<th>Mfg #</th>
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<td>746481</td>
<td>E64-8x4F</td>
<td>4 5/8 x 7 1/4</td>
<td>50</td>
<td>8 x 4</td>
</tr>
<tr>
<td>B</td>
<td>746464</td>
<td>E64-64F</td>
<td>4 5/8 x 7 1/4</td>
<td>50</td>
<td>6 vert. col.</td>
</tr>
</tbody>
</table>

Use for binder E325. 6 hole punched.

<table>
<thead>
<tr>
<th>Style</th>
<th>MP #</th>
<th>Mfg #</th>
<th>Size</th>
<th>Leaves</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>745325</td>
<td>AD-325F</td>
<td>4 5/16 x 6 15/16</td>
<td>50</td>
<td>8 x 4</td>
</tr>
<tr>
<td>B</td>
<td>740325</td>
<td>AA-325F</td>
<td>4 1/8 x 6 1/2</td>
<td>50</td>
<td>6 vert. col.</td>
</tr>
</tbody>
</table>
Aervoe’s Survey Marking Paint is a superior upside down marking paint that is designed for survey marking. It provides the best quality paint in terms of color visibility and retention, durability, and a lasting mark of up to six months. Non-freezing and operational to 14°F. Colors formulated to meet standards set by OSHA and APWA/One Call Systems. Adheres to almost any surface, including wood, concrete, asphalt, brick, etc. Container size: 20 oz. (17-oz. fill)

**Regular**
- 15200 Clear
- 15201 Red
- 15202 Yellow
- 15203 Blue
- 15204 Green
- 15205 Orange
- 15206 Black
- 15207 White
- 15210 Silver
- 15212 Purple

**Fluorescent**
- 15220 Fluorescent Red
- 15222 Fluorescent Orange
- 15224 Fluorescent Green
- 15226 Fluorescent Yellow
- 15227 Fluorescent Blue
- 15229 Fluorescent Pink
- 15230 Fluorescent Red-Orange

Aervoe chalks are a special blend of raw materials that are safe on all surfaces and are designed specifically for temporary marking. Mark will disappear in 10 to 20 days when exposed to water, traffic and other abrasions. It can also be washed off with a pressure washer if desired. Container size: 20 oz. (15-oz. fill)

**Spray Chalk**
- 15214 Blue
- 15215 White
- 15216 Red
- 15217 Orange
- 15218 Yellow
- 15219 Green

These applicators can be used with both upside down survey marking paint, and upside down spray chalk.
### Chalk Box

13772  Model GB1 High speed chalk reel 100'
       Plastic housing and handle
132154 Model RWM1 High speed chalk reel 100'
       Metal housing and handle
13131  Model G100 Little-Giant chalk reel 100'
       Plastic housing, metal handle
13130  Model G130 Giant chalk reel 130'
       Plastic housing, metal handle

### Mason Cord

Braised nylon twine. 155 lbs. test. 500 feet.

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>13550</td>
<td>Green</td>
</tr>
<tr>
<td>13650</td>
<td>Yellow</td>
</tr>
<tr>
<td>13750</td>
<td>White</td>
</tr>
<tr>
<td>13850</td>
<td>Pink</td>
</tr>
<tr>
<td>13950</td>
<td>Orange</td>
</tr>
</tbody>
</table>

### Paintstik Crayons

Long lasting, weather resistant, fade resistant, lead free for layout, color coding and identification. Marks on rough, smooth, rusty or dirty surfaces. One dozen per box.

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>280220</td>
<td>White</td>
</tr>
<tr>
<td>280221</td>
<td>Yellow</td>
</tr>
<tr>
<td>280222</td>
<td>Red</td>
</tr>
<tr>
<td>280227</td>
<td>Pink</td>
</tr>
</tbody>
</table>

### Dixon Lumber Crayons

One dozen per box

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>554960</td>
<td>Yellow (Keil)</td>
</tr>
<tr>
<td>555200</td>
<td>Red</td>
</tr>
<tr>
<td>555210</td>
<td>Blue</td>
</tr>
<tr>
<td>554940</td>
<td>Black</td>
</tr>
<tr>
<td>555230</td>
<td>White</td>
</tr>
<tr>
<td>555260</td>
<td>Pink</td>
</tr>
<tr>
<td>555000</td>
<td>Wood Holder</td>
</tr>
</tbody>
</table>

### Ideal Marker


<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>8813501</td>
<td>Black</td>
</tr>
<tr>
<td>8813502</td>
<td>Red</td>
</tr>
<tr>
<td>8813503</td>
<td>Replacement tips</td>
</tr>
</tbody>
</table>

### Pencil Sharpner

Keson CP2 carpenters pencil sharpener. Sharpens to a square flat tip. (13226)

### Dixon Felt Marker

One dozen per box

Metal Barrel Chisel Point. Black. (558717)

### Dixon Paint Marker

Metal barrel with valve action tip. One dozen per box.

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>5580221</td>
<td>Red</td>
</tr>
<tr>
<td>5580223</td>
<td>Yellow</td>
</tr>
<tr>
<td>5580227</td>
<td>Black</td>
</tr>
<tr>
<td>5580229</td>
<td>White</td>
</tr>
</tbody>
</table>

### Chalk

Chalk (5 pounds)

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
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</thead>
<tbody>
<tr>
<td>13702</td>
<td>Blue</td>
</tr>
<tr>
<td>13703</td>
<td>White</td>
</tr>
<tr>
<td>13704</td>
<td>Yellow</td>
</tr>
<tr>
<td>13708</td>
<td>Red</td>
</tr>
<tr>
<td>13709</td>
<td>Black</td>
</tr>
<tr>
<td>13710</td>
<td>Glo Orange</td>
</tr>
</tbody>
</table>

Chalk (8 oz)

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>13723</td>
<td>White</td>
</tr>
<tr>
<td>13724</td>
<td>Yellow</td>
</tr>
<tr>
<td>13725</td>
<td>Blue</td>
</tr>
<tr>
<td>13726</td>
<td>Red</td>
</tr>
<tr>
<td>13727</td>
<td>Glo Orange</td>
</tr>
<tr>
<td>13728</td>
<td>Glo Lime</td>
</tr>
<tr>
<td>13729</td>
<td>Black</td>
</tr>
</tbody>
</table>

13748 Yellow (48# bucket)
SURVEY MARKERS

SURVEYORS SHINERS
The tin flat shiner is 2-1/4" diameter punched in the center with crimped edges. Shiners are used for indicating semi-permanent points with spikes or nails.
- 8813430 Flat, 250 per box
- 8813431 Raised, 260 per box

MAGNAILS
Pound it Harder, Find it Farther (About 100 per box)
- 748134 3/4" x 1/8"
- 748111 1" x 5/32"
- 748114 1 1/4" x 3/16"
- 748112 1 1/2" x 1/4"
- 748102 2" x 1/4"
- 748122 2 1/2" x 1/4"

NAIL MARKERS
70 (per package)
- 8811501 With 1/4" hole
- 8811502 With 1/8" hole

P-K MASONRY NAILS
(About 100 per box)
- 763724 3/4"
- 763832 1"
- 763936 1 1/4"
- 764140 1 1/2"
- 764148 2"
- 764156 2 1/2"

MAG SPIKE
3/8" x 3" (25 per box)

STAKE TACKS (1-lb)
- 456855 Stake tacks
- 456855P Stake tacks/ plastic container

HAMMERLESS STAKE WITH SURVEY DISK
742424 100 each pack

SURVEY DISK ONLY
742425 20 per sheet

HAMMERLESS STAKE ONLY
742423 100 each pack
**NJ DOT BRASS SURVEY MARKERS**

749998

**MONUMENT SPIKES**

8813262 6” Long
8813264 8” Long

**FLAT & DOME SURVEY MARKERS**

Monument markers are die cast from solid brass. The ribbed shank prevents turning or loosening once they are set in concrete. The 1/8” top has a non-glare matte finish. Shank area 0.4 sq. in. Shank length, 2 in.

**Flat Survey Markers**
Top diameter:
- 8813400 1 3/8”
- 8813403 2”
- 8813406 2 1/2”
- 8813408 3”

**Dome Survey Markers**
Solid brass markers with curved heads. The ribbed shank prevents turning or loosening once they are set in concrete. Shank area 0.4 sq. in. Shank length 2 in.

**FLUORESCENT DYE TABLETS**
For tracing small volumes of water; septic system analysis, leak detection, plumbing and sewage tracing. One tablet in approximately 60 gallons of water will give a visible dye concentration of one part per million. Dissolves in 5 to 8 minutes. Packed 200 tablets in a plastic bottle. 10 oz.
- 101103 Fluorescent red
- 101101 Fluorescent yellow/green

**FLUORESCENT DYE LIQUID CONCENTRATE**
For projects where metering of input into system is required; flow studies, dilution rate, leak detection, pollution detection, septic tanks, sewer lines. Each gallon when diluted in 100,000 gallons of water will give a visible concentration of one part per million which is easily visible to the eye. One pint container.
- 106001 Fluorescent yellow/green
- 106002 Standard blue
- 106023 Fluorescent red

**Call Toll Free**
1-800-LEVEL UP

Index on pages 2-3 • Order form on page 101 • 1-800-LEVEL UP • Surveyor’s Shop Vol. 10, No. 1
**ALUMINUM SURVEY REBAR CAPS**  
Blank or stamped  
Minimum 50 pieces for free stamping

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Diameter</th>
<th>Length</th>
<th>Rebar Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>741022</td>
<td>SK-102-2 2&quot; flat top</td>
<td>2&quot;</td>
<td>3/4&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741026</td>
<td>SK-108-2F 2&quot; flat top</td>
<td>2&quot;</td>
<td>5/8&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741027</td>
<td>SK-106-2½F 2 1/2&quot; flat top</td>
<td>2 1/2&quot;</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741029</td>
<td>SK-108-2½F 2 1/2&quot; flat top</td>
<td>2 1/2&quot;</td>
<td>5/8&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741031</td>
<td>SK-108-3 3/4&quot; flat top</td>
<td>3 1/4&quot;</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741032</td>
<td>SK-106-3 3/4&quot; flat top</td>
<td>3 1/4&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

*With plastic insert:
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Diameter</th>
<th>Length</th>
<th>Rebar Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>741025</td>
<td>SK-106-2F 2&quot; flat top</td>
<td>2&quot;</td>
<td>3/4&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741026</td>
<td>SK-108-2F 2&quot; flat top</td>
<td>2&quot;</td>
<td>5/8&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741027</td>
<td>SK-106-2½F 2 1/2&quot; flat top</td>
<td>2 1/2&quot;</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>741029</td>
<td>SK-108-2½F 2 1/2&quot; flat top</td>
<td>2 1/2&quot;</td>
<td>5/8&quot;</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

**ALUMINUM WASHER DISC**  
Blank or stamped  
Minimum 50 pieces for free stamping

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Diameter</th>
<th>Length</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>741318</td>
<td>AD-2S 2&quot; x 3 3/32&quot; Thick w/ 3/8&quot; hole</td>
<td>2&quot;</td>
<td>3 3/32&quot;</td>
<td>3/8&quot;</td>
</tr>
</tbody>
</table>

**REBAR DRIVER**  
Used to protect rebar top from striking damage caused by hammer

<table>
<thead>
<tr>
<th>Code</th>
<th>Rebar Size</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>741112</td>
<td>1/2&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>741158</td>
<td>5/8&quot;</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>
STAMPING FORM FOR METAL CAPS AND MARKERS

Available for center markings

- Center Dot (3/32″)
- Triangle (5/32″ sides)
- Triangle with Center Dot (9/16″ sides & 1/16″ dot)
- Plus Sign/Cross (11/2″ & 2″ caps - 21/32″ x 21/32″)
- Plus Sign/Cross (31/4″ caps - 13/16″ x 13/16″)
- Elongated Cross (9/4″ x 7/16″)
- Arrow 7/8″ long
- Arrow 7/8″ with 1/4″ cross (11/2″ tops)
- Arrow 11/4″ with 1/4″ cross (2-31/4″ tops)

Contact Name ______________________________
Company Name _____________________________
Address __________________________________
City ________________ State ______ Zip _____
Phone ________________________________
Fax ________________________________

2 1/2 Inch Top
Outside Row: 46 spaces, 3/16″ characters
Inside Row: 35 spaces, 1/8″ characters
Print data facing in or out

2 Inch Top
Outside Row: 35 spaces, 1/8″ characters
Inside Row: 22 spaces, 1/8″ characters
Print data facing in or out

3 1/4 Inch Top
Outside Row: 41 spaces, 3/16″ characters
Middle Row: 46 spaces, 3/16 condensed characters
Inside Row: 35 spaces, 1/8″ characters
Print data facing in or out

Print this page from catalog.
Complete it and send it to us.
Thanks.
SURVEY MARKERS

Standard colors, 300 ft.
741212 Red
741213 White
741214 Blue
741215 Yellow
741216 Orange
741217 Green
741218 Black

Fluorescent colors, 150 feet
741010 Orange
741011 Pink
741012 Lime
741013 Blue
741014 Green
741015 Yellow
741017 Red
741220 Purple

Stripe colors, 150 feet
741006 Glo orange and black
741023 Red and white
741043 Blue and white
741053 Yellow and white
741056 Yellow and black
741066 Glo pink and black
741415 Black and white

Arctic flagging, 150 feet
Heavy duty 5 mil. Low cold crack rating of - 40°F.
741110 Glo orange
741111 Glo pink
741117 Glo lime
741119 Glo blue
741115 Yellow (300 feet)

Polka Dot, 300 feet
741123 Glo pink and black
741133 Black and white
741143 Blue and white
741153 Yellow and white
741173 Green and white

Wetlands Flagging, 150 feet
741419 Glo pink
741420 Glo orange

TEXAS FLAGGING
High quality and durable vinyl flagging available in a wide range of colors to meet every surveyor’s needs. Flagging is weatherproof, economical, cold resistant and of high visibility.

FLAGGING DISPENSER
(748211)

AERIAL TARGETS
Place these ready-to-use targets at predetermined points before flyover. Choose from the bulls-eye target with a black background, white cross, and white bulls-eye or the black and white iron cross aerial target. Constructed of heavy-duty vinyl. 60" x 60".
58001 Bulls Eye
58002 Iron cross

AERIAL FLAGGING
741312 White, 12" x 100 yards
741324 White, 24" x 100 yards
## STAKE FLAGS
Bright vinyl flags in contrasting colors securely attached to stiff steel wire stakes. Ideal for visual plotting, temporary field layouts of base lines, elevations, grades, curbing and drainage lines. Packed 100 to a bundle. Stake flags are available in 21", 24", 30" & 36" lengths. Flag size is 4"x 5" size.

<table>
<thead>
<tr>
<th>Wire Stake Flag Markers</th>
<th>4&quot; x 5&quot; -- 21&quot; Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>33518 Red</td>
<td></td>
</tr>
<tr>
<td>33520 Yellow</td>
<td></td>
</tr>
<tr>
<td>33521 Green</td>
<td></td>
</tr>
<tr>
<td>33522 Blue</td>
<td></td>
</tr>
<tr>
<td>33524 Glo orange</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wire Stake Flag Markers</th>
<th>4&quot; x 5&quot; -- 24&quot; Long</th>
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</thead>
<tbody>
<tr>
<td>33525 Red</td>
<td></td>
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<tr>
<td>33526 White</td>
<td></td>
</tr>
<tr>
<td>33527 Blue</td>
<td></td>
</tr>
<tr>
<td>33528 Yellow</td>
<td></td>
</tr>
<tr>
<td>33529 Green</td>
<td></td>
</tr>
<tr>
<td>33530 Glo orange</td>
<td></td>
</tr>
<tr>
<td>33531 Glo pink</td>
<td></td>
</tr>
<tr>
<td>33532 Glo lime</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>Wire Stake Flag Markers</th>
<th>4&quot; x 5&quot; -- 30&quot; Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>33533 Red</td>
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<tr>
<td>33534 White</td>
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<tr>
<td>33535 Blue</td>
<td></td>
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<tr>
<td>33536 Yellow</td>
<td></td>
</tr>
<tr>
<td>33537 Green</td>
<td></td>
</tr>
<tr>
<td>33538 Glo orange</td>
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<tr>
<td>33539 Glo pink</td>
<td></td>
</tr>
<tr>
<td>33540 Glo lime</td>
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</table>

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>33541 Red</td>
<td></td>
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<tr>
<td>33542 White</td>
<td></td>
</tr>
<tr>
<td>33543 Blue</td>
<td></td>
</tr>
<tr>
<td>33544 Yellow</td>
<td></td>
</tr>
<tr>
<td>33545 Green</td>
<td></td>
</tr>
<tr>
<td>33546 Glo orange</td>
<td></td>
</tr>
<tr>
<td>33547 Glo pink</td>
<td></td>
</tr>
<tr>
<td>33548 Glo lime</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PVC Stake Flag Marker</th>
<th>4&quot; x 5&quot; -- 24&quot; Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>33789 Glo orange</td>
<td></td>
</tr>
</tbody>
</table>

## HARDWOOD STAKES
Pick-up only
Drop shipment available on large orders. Call for details.

<table>
<thead>
<tr>
<th>Lath (50 per bundle)</th>
<th>1/2&quot; x 1 5/8&quot; x 10 1/2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>792110</td>
<td>1/2&quot; x 1 5/8&quot; x 10 1/2&quot;</td>
</tr>
<tr>
<td>792124</td>
<td>1/2&quot; x 1 5/8&quot; x 24&quot;</td>
</tr>
<tr>
<td>792130</td>
<td>1/2&quot; x 1 5/8&quot; x 30&quot;</td>
</tr>
<tr>
<td>792136</td>
<td>1/2&quot; x 1 5/8&quot; x 36&quot;</td>
</tr>
<tr>
<td>792148</td>
<td>1/2&quot; x 1 5/8&quot; x 48&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wedges (50 per bundle)</th>
<th>Large &quot;V&quot; shaped wedge</th>
</tr>
</thead>
<tbody>
<tr>
<td>793509</td>
<td>1 5/8&quot; x 1 5/8&quot; x 9&quot;</td>
</tr>
<tr>
<td>793512</td>
<td>1 5/8&quot; x 1 5/8&quot; x 12&quot;</td>
</tr>
<tr>
<td>793515</td>
<td>1 5/8&quot; x 1 5/8&quot; x 15&quot;</td>
</tr>
<tr>
<td>793518</td>
<td>1 5/8&quot; x 1 5/8&quot; x 18&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade Stakes (25 per bundle)</th>
<th>1&quot; x 1 3/4&quot; x 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>797812</td>
<td>1&quot; x 1 3/4&quot; x 12&quot;</td>
</tr>
<tr>
<td>797815</td>
<td>1&quot; x 1 3/4&quot; x 15&quot;</td>
</tr>
<tr>
<td>797818</td>
<td>1&quot; x 1 3/4&quot; x 18&quot;</td>
</tr>
<tr>
<td>797824</td>
<td>1&quot; x 1 3/4&quot; x 24&quot;</td>
</tr>
<tr>
<td>797830</td>
<td>1&quot; x 1 3/4&quot; x 30&quot;</td>
</tr>
<tr>
<td>797836</td>
<td>1&quot; x 1 3/4&quot; x 36&quot;</td>
</tr>
<tr>
<td>797848</td>
<td>1&quot; x 1 3/4&quot; x 48&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layout Stakes (25 per bundle)</th>
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</tr>
<tr>
<td>799148</td>
<td>1&quot; x 1&quot; x 48&quot;</td>
</tr>
</tbody>
</table>

## STAKE STARTER
Designed by a contractor for contractors driving stakes. Safe, quick and easy to use, the Striker allows you to drive stakes in compacted soil or rock without splitting or damage to the stake. Fits 1" x 2" wooden stakes, lath or rebar stakes. (39508)

## STEEL REBAR
15 per bundle. Pick up only.

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</tr>
<tr>
<td>795824</td>
<td>5/8&quot; x 24&quot;</td>
</tr>
</tbody>
</table>
SMARTTOOL®

Reads All Angles  Find level and plumb in two ways: Quick reference, uses the sensitive bubble vials;

- 92288 Smarttool 24” Rail with sensor 60cm (2 foot)
- 92296 Smarttool 48” Rail with sensor 120cm (4 foot)
- 92346 Smarttool Module only
- 92908 24 inch carrying case
- 92924 48 inch carrying case

ALUMINUM LEVELS

Heavy gauge I-beam. Features han-set, impact resistant, fixed vials on each working edge.

- 43881 24”, 4 vials
- 43880 48”, 6 vials

TORPEDO LEVEL

Sturdy 7” frame houses three highly visible permanently lined vials, one level, one 45° and one plumb. Strong magnetic base bonds level to iron and steel surfaces.  (27573)

LINE LEVEL

3” Convenient hooks for hanging and changing position on line. Level bubble vial for accurate and easy reading. Durable aluminum.  (27136)
SQUARE 6" HAND LEVEL
WITH RIGHT ANGLE REFLECTOR
6" long, square sighting tube, fixed eyepiece. Removable reflector unit permits right angle viewing when aperture is turned outward, and the reflector unit is placed in an inverted position in sighting tube. Complete with belt loop leather case.  (377622)

6" HAND LEVEL
6" long, fixed eyepiece, adjustable reflector and internally mounted bubble assembly. A hexagonal objective cap prevents rolling. Complete with belt loop leather case.  (956211)

SQUARE HAND LEVEL
5" long, square sighting tube and fixed eyepiece, durable black finish. This can be used as a bench level. When supported on staff, it's sufficiently accurate for running levels in gardening or brick lines. Complete with belt loop leather case.  (956213)

5X MAGNIFYING HAND LEVEL
8" long, round telescope tube. The objective lens is mounted on a movable slide which brings distant objects into sharp focus. Eyepiece focusing slide allows regulation of crossline image. 5x magnification of objective and 2x magnification of level bubble. Solid brass construction with durable black finish. Stadia lines reading 1:10. Complete with belt loop leather case.  (956210)

2X MAGNIFYING HAND LEVEL
6" long with draw eyepiece extending to 8". Adjustable reflector and internally mounted bubble assembly. Complete with belt loop leather case.  (956212)

2X-6 INCH HAND LEVEL WITH STADIA
This finely worked version of American's all time favorite hand level extends to 7" and features an enclosed vial. Unique cream-colored level comes with a padded, water-resistant Cordura carrying case with belt loop in place of leather case.  (956219)

TOPOGRAPHIC ABNEY LEVEL
K & E type Abney Level, 6 3/8" long, extending to 7 3/8". Equipped with two interchangeable arcs with 47mm (1.85') radius. One arc is graduated in degrees, 0 to 60 in both directions. The other arc is graduated in topographic. Index has friction movement for time adjustment. Complete with belt loop leather case.  (377643)
MACHETE
5" long plastic handle. Weighs 21 ozs. A multiple use tool for weed growth, cleaning and cutting brush, vines and shrubs. Blade can take a razor sharp edge.
742818 Machete 18"
742822 Machete 22"
742824 Machete 24"
223118 Leather Sheath 18"
223122 Leather Sheath 22"
223124 Leather Sheath 24"

SANDVIK BUSH AXE
Used for clearing brush and young trees. Bush axe is lightweight, durable and has razor-sharp replaceable blades. 28" hickory handle. 7 1/4" Swedish steel blade.
8813015 Bush Axe
8813016 Replacement Handle
8813017 Replacement Blade

DITCH BANK BLADE
8813008 Ditch Bank Blade
8813009 Replacement Handle

BUSH HOOK
Three-pound, 11 inch red painted steel blade with 36" hickory handle.
8813010 Bush hook
8813011 Replacement handle

ESTWING SLEDGE
Forged one-piece solid steel with nylon vinyl grip.
8813060 4 lbs 16" Steel handle

PICK HAMMER
Forged one-piece head/handle of finest steel, perfectly tempered—will not become “chewed up” in long use. Nylon-vinyl deep cushion grip absorbs all shocks. Weighs 22 oz. (8813022)

SLEDGE HAMMER
Special analysis American steel; heat-treated, polished faces, power-driven and flame sealed selected hickory handles.
412843 2 lbs 16" Wood handle
412844 4 lbs 16" Wood handle
412888 8 lbs 36" Wood handle
412845 4 lbs 16" Fiberglass handle

CHISELS
37405 Cold Chisel 1/2" x 6" long
37408 Cold Chisel 3/4" x 7" long
37417 Cold Chisel 1" x 8" long

ESTWING ROCK/CONCRETE CHISEL
Unsurpassed temper molded vinyl grip 1/2" x 12" (8813085)

Warning: Picks may chip when struck against rocks or other hardened surfaces or tools. Always wear safety goggles. Bystanders should also wear safety goggles. See safety glasses on page 83.

CONCRETE DRILL
Heat-treated, carbon steel 10" x 5/8" heavy handle. (8813089)
ROUND FROST PIN
(Left) The Redtop frost pin is made of 1" diameter, high grade tool steel with a 1 3/4" button top and a hardened diamond point tip. 18 inch length. Excellent for breaking pavement and making pilot holes for stakes in hard ground. (744418)

GAD BAR
(Right) The Redtop gad bar is made of 3/4" x 1 1/2" x 18" rectangular, high grade tool steel with hardened steel tip. Excellent for breaking pavement and making pilot holes for stakes in hard ground. (8813080)

PIPE-MIC II
Measures pipe inverts and sizes quickly and accurately. Made of lightweight non-rusting aluminum. New round foot design slices through material at bottom of pipe. Used with Crain SVR rods only (See page 00) 43208 Pipe-Mic II 43209 Pipe-Mic II foot extension

MANHOLE HOOK
Forged one-piece head/handle of finest tool steel. Perfectly tempered. 741700 24" 741701 36"

TILE PROBES
For locating pipes, septic tanks, or other objects underground. 3/8" x 42" diameter with a ball wedged on the tip for clearance. Cross handle included. Made in the USA. 77540 Metal 77543 Fiberglass

POCKET SCRIBERS CARBIDE TIP
Scribe any hard surface including steel with this diamond lapped carboloy cemented carbide tipped pocket scriber. Handle is solid aluminum bar stock, satin finish. With pocket clip. 8813053 Premium scribe 8813054 Giant scribe 8813055 Extra points - 6 per pack

ACCUSHARP
Knife and tool sharpener. (741001)

WISK BROOM
Made of corn and bear grass. 10" long. (57811)

TALLY REGISTER
Four-digit capacity with quick return to zero. Compact, chrome plated brass case fits hand snugly and comfortably. Precision construction assures effortless, trouble-free use. (743010)

POCKET MAGNIFIER
61493 Black plastic cases and lens frames, glass lenses. Triple 1 1/8" diameter. Lens: 5x, 10x, 15x
SAFETY VESTS

LIME SAFETY VEST

Mesh Back
Cloth polyester blend surveyor vest is loaded with features including multiple pockets, a front zipper closure with two vertical strips and a horizontal strip around the bottom for 360° visibility. Orange/silver/orange stripping is 1 1/2". Complies with MUTCD Section 6R-3, VI-60/1995

- 991200 Large
- 991225 Extra large
- 991250 2 XL
- 991275 3 XL
- 991276 XL
- 991277 5 XL

LIME SAFETY VEST

Solid Back
Cloth polyester blend surveyor vest is loaded with features including multiple pockets, a front zipper closure with two vertical strips and a horizontal strip around the bottom for 360° visibility. Orange/silver/orange stripping is 1 1/2". Complies with MUTCD Section 6R-3, VI-60/1995

- 991100 Large
- 991125 Extra large
- 991174 2 XL
- 991175 3 XL
- 991176 5 XL

SECO SURVEYORS

UTILITY VEST
Durable safety orange or fluorescent yellow fabric is constructed on 100% polyester for softness, comfort, superior strength and abrasion resistance. Designed to comply with DOT MUTCD and ANSI/ISEA 107-2004 Class 2 standards.

- 8806846-0 Medium Flo orange
- 8806846-Y Medium Flo yellow
- 8806850-0 Large Flo orange
- 8806850-Y Large Flo yellow
- 8806854-0 XL Flo orange
- 8806854-Y XL Flo yellow
- 8806858-0 2 XL Flo orange
- 8806858-Y 2 XL Flo yellow
- 8806862-0 3 XL Flo orange
- 8806862-Y 3 XL Flo yellow
- 8806866-0 Jumbo Flo orange
- 8806866-Y Jumbo Flo yellow

LIME SAFETY VEST

Solid Back
Cloth polyester blend surveyor vest is loaded with features including multiple pockets, a front zipper closure with two vertical strips and a horizontal strip around the bottom for 360° visibility. Orange/silver/orange stripping is 1 1/2". Complies with MUTCD Section 6R-3, VI-60/1995

- 991100 Large
- 991125 Extra large
- 991174 2 XL
- 991175 3 XL
- 991176 5 XL

WINDBREAKER
Lightweight 100% polyester shell with tricot lining. 6 snap front closure with 2 front/pockets, waistline drawstring, silver reflective material. Meets ANSI/ISEA 107-2004 Class 3 federal mandatory requirements.

- 999658 Large orange
- 999659 Large lime
- 999660 XL orange
- 999661 XL lime

10 POCKET NON-ANSI SAFETY VEST
Comfortable poly/cotton material, zipper front, zipper back pouch, 2" wide contrasting hi-intensity reflective tape.

- 991650 Large
- 991700 Extra large
- 991750 2 XL
- 991800 3 XL

12 POCKET NON-ANSI SAFETY VEST
Comfortable poly/cotton material, zipper front, 2" wide contrasting hi-intensity reflective tape.

- 991400 Large
- 991450 Extra large
- 991500 2 XL
- 991550 3 XL

Index on pages 2-3 • Order form on page 101 • 1-800-LEVEL UP • Surveyor’s Shop Vol. 10, No. 1
SECO SURVEYORS
UTILITY VEST

8826550-0 Large Flo orange
8826550-Y Large Flo yellow
8826554-0 XL Flo orange
8826554-Y XL Flo yellow
8826558-0 2 XL Flo orange
8826558-Y 2 XL Flo yellow
8826562-0 3 XL Flo orange
8826562-Y 3 XL Flo yellow
8826566-0 Jumbo Flo orange
8826566-Y Jumbo Flo yellow

SECO SAFETY
UTILITY VEST

8827846-0 Medium Flo orange
8827846-Y Medium Flo yellow
8827850-0 Large Flo orange
8827850-Y Large Flo yellow
8827854-0 XL Flo orange
8827854-Y XL Flo yellow
8827858-0 2 XL Flo orange
8827858-Y 2 XL Flo yellow
8827862-0 3 XL Flo orange
8827862-Y 3 XL Flo yellow
8827866-0 Jumbo Flo orange
8827866-Y Jumbo Flo yellow

SECO HEAVY DUTY
UTILITY VEST
Made of heavy-duty 1,000 denier Cordura, treated with durable water-repellant finish, resistant to punctures and tearing. Features multiple pockets. Complies with MUTCD specifications.

8806746-0 Medium Flo orange
8806746-Y Medium Flo yellow
8806750-0 Large Flo orange
8806750-Y Large Flo yellow
8806754-0 XL Flo orange
8806754-Y XL Flo yellow
8806758-0 2 XL Flo orange
8806758-Y 2 XL Flo yellow
8806762-0 3 XL Flo orange
8806762-Y 3 XL Flo yellow
8806766-0 Jumbo Flo orange
8806766-Y Jumbo Flo yellow

TRANSIT AUTHORITY
MESH VEST
High visible vinyl coated nylon includes a 500 CD reflective silver binding all the way around and a 2" LSL 500 CD reflective vertical stripes with a clear plastic ID pocket. One size fits all. Complies with MUTCD Section 6R-3, VI-60/1995.

991317 Surveyor
991318 Contractor

HEAVY WEIGHT
MESH SAFETY VEST
Heavy-duty vinyl coated 9 x 9 flat woven polyester, 3/4" x 8" elastic sides, blaze orange with black poly cotton binding. Lime/silver/lime 1 1/2" reflective stripes One size fits all. Complies with MUTCD Section 6R-3, VI-60/1995. (991319)

RAILWAY "TEAR-AWAY"
MESH SAFETY VEST
Vest has OSO reflective elastic sides that tear away as well as a tear away shoulder with 2" silver vertical reflective stripe. One size fits all. Complies with MUTCD Section 6R-3, VI-60/1995. (9916315)
NYLON MESH WARNING SIGN
Non-reflective, high-visibility orange sign with rib support. Roll-up design for daytime use. Stand sold separately.
8813652 36" Survey Crew Sign
8813653 48" Survey Crew Sign
NCHRP-350 approved design. Single heavy-duty coil spring to hold 36" and 48" signs. Kick-release adjustable legs for easy setup. Stand only. Sign sold separately.
(8813651)

HAND SAFETY FLAGS
18" x 18". All flags are red/orange in color with wooden dowels, 30" in length.
24892 Standard
24893 With stiffener

CYALUME® CHEMICAL LIGHTSTICKS
To activate, flex the 6" plastic tube and shake. The result is brilliant, non-ignitable chemical light that is safe to use around flammable materials. Works under water.
(02110)
ST-2 COMPACT AMBER STROBE
- New standard size powerful strobe light
- Solid state circuitry - no moving parts
- High output 3-5 watt -- 3.6 joules
- 70-80 flashes per minute
- Multi-voltage running on 12-72 v DC
- Draws under 350 mA at 12 v DC
- Unbreakable polycarbonate outer dome
- Available as magnetic mount with plug- in cigarette lighter cord
- Height 6.5", Diameter 5.5"
(994020)

MS-2 COMPACT AMBER STROBE
- New standard size powerful strobe light
- Solid state circuitry - no moving parts
- High output 3-4 watt -- 3.6 joules
- 70-80 flashes per minute
- Multi-voltage running on 12-72 v DC
- Draws under 350 mA at 12 v DC
- Unbreakable polycarbonate outer dome
- Available as magnetic mount with plug- in cigarette lighter cord
- Height 4.5", Diameter 5.5"
(994024)

MR-3 COMPACT ROTATING AMBER LIGHT
- Low profile, belt-driven, rotating reflector beacon
- High output 3-4 watt -- 3.6 joules
- 90-110 flashes per minute
- Multi-voltage running on 12-72 v DC
- 2.8 amps at 12 VDC (Incandescent)
  4.5 amps at 12 VDC (Halogen)
- Available as magnetic mount with plug- in cigarette lighter cord
- Height 4.5", Length 7.75", Diameter 5.75"
(994030)

BEACON DUAL ROTATOR AMBER LIGHT BAR
- Two 55-watt standard rotators
- Polycarbonate amber lens and diamond mirror with suction cup mounts
- Includes 12 foot straight cord with lighter plug and on/off switch
- Quiet belt drive with both velcro and magnetic mounting
- Meets SAE requirements
- Ht. 5.25" Length 16.5" Width 8"
(992279)
SAFETY HELMETS WITH RATCHET
Injection molded with high density polyethylene. Penetration, impact, chemical and voltage resistant. 6 point suspension, with built-in nap strap. Fully adjustable for head sizes 6 1/2 to 8. Complies with OSHA requirements.
514024  White with rachet
514011  Yellow with rachet
514101  Glo orange with rachet
514579  Lime with rachet

3M THINSULATE® HARD HAT LINER
Both liners are made of 100% cotton twill treated with flame retardant and insulated with Thinsulate® for protecting your head, neck and ears. (24541)

ULTRASONIC EARMUFF

HARD HAT WINTER LINER
Protects and warms the head, upper neck, and ears. Chinstrap with Velcro® fastener. Standard size fits all. For use with any hard hat or cap. (24451)

HEADSUP LITE™
A hybrid LED/Xenon hands-free light gives you the option of using the Xenon lamp for intense bright light, or 3 LEDs to conserve battery life. The multi-angle pivoting head allows you to aim light where you need it. A rubber strap for hard hat use and adjustable cloth strap for bare head use are both included. Powered by 3 AAA alkaline cells (included). (742620)

HARD HAT SHADE
Provides shade for the back of your neck while blocking the sun and most UV rays. Fits most hard hats. Cotton. (24368)

PVC EARPLUGS
Offers a high level of comfort, excellent noise reduction properties, easy insertion due to a tapered shape and moderately slow expansion rate, plus a high level of hygiene. Consistent quality control assures that expansion time and sound attenuation are consistent. Box includes 200 pair. (94129)
SOFT-FRAME GOGGLE
Soft, pliable vinyl frame is designed with flush sides and indented temple areas to effectively fit your face. Extra large, one-piece lens gives you a wide, undistorted field of vision and excellent “downvision.” Goggles will not discolor with age, soften at high temperature, or get brittle in cold. Lenses are .060” thick polycarbonate. Clear frame, clear lens. Adjustable elastic headband. Meets ANSI Spec. Z87.1-1997. (23290)

SAFETY GLASSES
These safety glasses can be comfortably worn over prescription eyewear and provide outstanding eye protection with reinforced side-shields and an integrally molded brow guard. The hard coat lenses provide 99.9% UVA/UVB protection. Meets ANSI Z87.1+ requirements. (23310)

THREE-PIECE RAINSUIT WITH ELASTIC WAIST PANTS
Constructed of PVC on polyester. Features of the pants include reinforced crotch, elastic waist band and ankle and cuff take ups. The jacket has a large storm flap, arm pit vents with PVC eyellets, 2 front snap pockets, and cape back with nylon vent.

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<td>Large</td>
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<tr>
<td>94313</td>
<td>Extra large</td>
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GRIP ‘N GLOVE
A unique PVC “N-tread” coating provides non-skid grip and abrasion resistance. No seams means superior finger dexterity. Will not chafe or tear. Reversible, wear on either hand for longer life. 12" Long. (91000)

GENERAL PURPOSE TYVEK COVERALLS
Tough, tear, snag and puncture resistant spun-bonded white DuPont Tyvek resists penetration by most organic chemicals, asbestos, and toxic dust. Can be worn comfortably over undergarments or over street clothes. Includes hood with elastic wrists and ankles.

<table>
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<tr>
<td>32519</td>
<td>Extra Large</td>
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RED LASER GLASSES
Improve daytime visibility of red lasers. Polycarbonate scratch resistant lens. (353099)

INSTRUMENT RAIN COVER
Protects instruments up to total station size. (740000)

SURVEYOR’S UMBRELLA
63 in. spread • Cuts heat and glare for more accurate readings • 8 ft. 2 section pole with baked aluminum enamel finish.

<table>
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MILLER VERSALITE FULL-BODY HARNESSES


MILLER SHOCK ABSORBING LANYARD

Built-in shock absorbing system greatly reduces the arresting force of a fall. 6' Long, with locking snaps at each end. Bright yellow. (27221)

CAUTION TAPE

Bright yellow plastic tape printed with CAUTION along entire roll.
741310  3” x 1000ft
741330  3” x 300ft

PYRAMEX® LED LIGHT ACCESSORY

Ideal for low light situations! Fits hard hats and most safety glasses. Long life battery guarantees superior performance for up to 40 hours. 2 bulbs produce 1,000 lumens light. (02009)

STREAMLIGHT® PROPOLYMER® FLASHLIGHT

1-Watt, 10,000 hour, super high-flux LED provides a longer reaching, brighter beam that's 10 times brighter than a high-intensity LED. Waterproof, propolymer body is ergonomically shaped for maximum hand comfort. Runs up to 4 hours at full intensity with 2 additional hours of declining usable light. 7"L. Wrist lanyard included. Uses 4 AA cell batteries (not included). (02395)

SIGHT-GRID SIGNAL MIRROR

A built-in “sight-grid” lets you aim reflected sunlight exactly where you want it. Catch the eye of field personnel or ground parties. Surveyors – set up and locate EDM and other instruments. Thick laminated plate glass, 3” x 5” x 1/4”. (84999)

ELVEX® GELPODS™

Ultra soft polymer pods seal the ear canal opening. Offers three times the comfort of the softest reusable silicone ear plug and provides better ventilation than earmuffs. Noise Reduction Rating is 18 dB. (94116)

ELVEX® GELPODS™

Ultra soft polymer pods seal the ear canal opening. Offers three times the comfort of the softest reusable silicone ear plug and provides better ventilation than earmuffs. Noise Reduction Rating is 18 dB. (94116)
FIRST AIDS KIT
Great compact kit for leisure time activities. Tough durable plastic case with carrying handle. Size: 8" x 5" x 2 3/4". Weights 1 1/2 lbs. (520529)

CUTTER INSECT REPELLENT
20.9% DEET. Repels mosquitoes, chiggers, gnats, ticks, fleas, and biting flies. Available in regular scent. Note: Restricted. Cannot ship to or sell in New York. 6 oz. (25305)

DEEP WOODS OFF! FLY & MOSQUITO REPELLENT
25% DEET. This popular repellent keeps stable flies, black flies, sand flies, deer flies, mosquitoes, ticks, and chiggers off your skin. Up to ten hours protection. 6 oz. can. (25323)

PERMANONE TICK REPELLENT
This highly effective formulation repels and kills ticks, chiggers and mosquitoes. No odor. Not greasy. Apply only to clothing — do not apply to skin. Active ingredient: Permethrin. Available in CT, NJ and PA. 8 oz. Aerosol spray. (25221)

IVYX™ PRE-CONTACT SOLUTION
Use before you go into the woods for up to 8 hours of protection! IvyX provides an invisible, non-greasy, dry film that protects skin from contact with poison oak, ivy, and sumac oils. Box of 25 foil pouches. (25368)

TICK RELEASE™
One or two drops of this non-toxic, all organic citrus oil based tick removal liquid loosens a tick's grip by softening its attachment "cement," assuring complete removal of all body, head and mouth parts. It also relieves itching at the bite site. Combining Tick Release™ with a tick removal implement like Tick Nipper™ creates the safest and most effective tick removal system available. EPA/FDA approved. 25257 1/5 oz. citrus oil bottle 25245 Tick Nipper pliers not included
CONSTRUCTION MASTER PRO
(744065)

It's easy to use in the field or office and perfect for completing plans, layouts, bids and estimates. Work in and convert between building dimensions, including Metric Built-in Right-Angle solutions Areas, Volumes, Square-ups.

CONSTRUCTION MASTER PRO TRIG
(744080)

- Work in and convert between any building dimension, including Metric
- Trigonometric Function
- Find Weight per Volume
- Built-in Right-Angle solutions
- Complete Stair Layouts
- Roof, Rafter and Framing solutions
- Circular: Arcs, Circumference, Segments and More

CONSTRUCTION MASTER PRO-DESKTOP
(7444080)

- Work in and convert between any building dimension, including Metric
- Trigonometric Function
- Find Weight per Volume
- Built-in Right-Angle solutions
- Complete Stair Layouts
- Roof, Rafter and Framing solutions
- Circular: Arcs, Circumference, Segments and More

Everything you need, from a company you've trusted for years.
CONSTRUCTION CALCULATORS

CONSTRUCTION MASTER 5 (744050)
- Linear, Area and Volume solutions: convert dimensions, including Metric
- Rafter, Roof and Framing solutions: Hip/Valley, Jacks and Rake-Walls
- Stair solutions: Risers, Treads, Stringer, Incline
- Built-in Right-Angle solutions: Automatic Square-ups
- Circular and Arc: Areas, Diameters, Circumference
- Board Feet
- Weight per Volume

CONCRETE CALC PRO (744225)
- Work in Yards, Feet-Inch-Fractions
- Calculate Area, Volume and Weight per Volume
- Automatic Square-ups and Drops
- Rebar solutions for total Linear Feet and Weight per size
- Complete Stair Layouts; set Riser Height and Tread Width
- Equal Sided Polygons
- Circular Solutions: Circumference, Arc, Cone, Column and More!

ULTRA MEASURE MASTER (748025)
The Ultra Measure Master is the most complete and easy-to-use U.S. Standard to Metric conversion calculator available for Engineers, Architects, Construction Pro’s, Scientists and Students. Convert more than 60 imperial and Metric (si) units – over 400 conversion combinations with a touch of a few buttons! Forget complex scientific calculators or memorizing conversion formulas! The Ultra Measure Master meets federal highway metrication requirements. *Note: (si) is the International System of Units, or metric system.
- Over 400 Conversion Combinations
- More than sixty Standard U.S. and Metric Units Built-in!
- Easily Calculate Linear, Area and Volume Measurements

CONSTRUCTION MASTER 5 EN ESPAÑOL (744054)
HEAVY CALC PRO
(744325)
- Work in and convert between Yard, Feet-Inch-Fraction and Metric formats!
- Automatically calculate Areas and Volumes!
- Square-ups and Right Angles; Percent Grade and Slope; stakeout Drops, Ramps, Trenches, much more!
- Weight per Volume (Lbs, Tons, Kg)! Find percent (%) Swell and Shrink!
- Simplify Cut/Fill Estimates

MEASURE MASTER PRO
(744020)
- Work in and convert between dimensions, including Metric
- Linear, Area and Volume measurements; Square-up and Perimeter
- Find Weight and Weight per Volume
- Instant solutions for Circle Area, Circumference, Arcs and More
- Board feet
- Cost per Unit: solve unit cost and pricing

HEWLETT-PACKARD
HP33S
SCIENTIFIC CALCULATOR
(34036)
This pocket-sized programmable calculator features over 100 built-in scientific and mathematical functions. The HP 33S also features two data entry modes, algebraic or RPN (Reverse Polish Notation) which expresses calculation sequences without parentheses to reduce the number of keystrokes. The HP Solve function allows you to write and solve equations for any variable without rewriting the original equation.

Other features include 31KB RAM user memory; keystroke programming; 27 independent memory/ storage and recall math statistics programs (curve fitting, straight line, exponential, logarithmic, and power); 40 physics constants; scientific engineering notation; unit conversions; time conversions; and edit, undo, and delete capabilities.

Corporate charge accounts are available
**PLANIX DIGITAL ROLLER PLANIMETERS**

The **PLANIX 6** measures area in actual square centimeters or square inches. Area shown in plan or drawing must be calculated from this value. *(8365161)*

The **PLANIX 7** with numeric keyboard allows user input of scale so area from plan or drawing can be computed. *(8365170)*

The **PLANIX 10S** is compact and lightweight. Point/Stream (continuous) mode key allows conversion between point mode measurement for plotting points on straight lines and stream mode for tracing curves on curved lines. Total and Average as you Go mode allows measuring the same diagram more than once, for a more accurate average or cumulative measurement for large scale diagrams. *(8365110)*

**SCALE MASTER CLASSIC**

The new ScaleMaster Classic works in 72 different scales. It remembers last scale used, even when turned off.

- 72 scales -- architectural, engineering, engineering/map and metric
- Custom scale feature determines actual scale of reduced or enlarged plans
- Automatically calculates rectangular area and volume
- Audible clicking sound while rolling confirms entry *(used selectable feature)*
- Balanced for left or right hand use, leaves other hand free for notes
- Rolls dimensions forward and/or backward in any scale
- Celcon polymer wheel ensures slip-free accuracy on any surface
- Easy-to-read custom LCD display shows current scale *(i.e., 1/4" + 50 ft., etc.)*
- Accumulating Memory subtotals multi-page plans
- Lock switch prevents accidental scale changes
- Subtracts rolled dimensions with "back-off" *(subtract key)*
- Built-In Push-Button counter automatically totals and registers to 999,999
- Includes memory, auto shut-off, user's guide, case, long-life battery,

**SCALE MASTER II**

The new ScaleMaster II works in 91 different scales. Do accurate Take-offs in Any Scale ...Anytime ...Anywhere:

- 91 Built-in Scales: 50 Imperial(English) and 41 Metric
- 8 Custom Scales calibrate to any plan, even if faxed, enlarged or reduced. Great for plan books!
- Calculates *Rectangular* Area and Cubic
- Volume automatically
- Features Auto-Count, Constant (+k) an Metric/Imperial switch!
- PC Interface capability *(with optional add-on kit)* *(746215)*

**ARCHITECT ESTIMATING SCALE**

Blade size is 1/4" x 5' -- with 1/8" one side/1/4" other side

45848 Lufkin W393 *(automatic blade return)*

695025 Pacific Arc EST 5025RM *(manual blade return)*
**TRIANGULAR SCALES 12"**

<table>
<thead>
<tr>
<th>Premium Scale All Plastic, with fully divided graduations.</th>
<th>Premium Metric Scales 12&quot; Triangular</th>
</tr>
</thead>
<tbody>
<tr>
<td>695120 Architect</td>
<td>695301 01 1:100, 1:200, 1:300, 1:400, 1:500, 1:600</td>
</tr>
<tr>
<td>695121 Engineer</td>
<td>695302 02 1:20, 1:33 1/3, 1:40, 1:50, 1:80, 1:100</td>
</tr>
<tr>
<td>695303 03 1:100, 1:200, 1:250, 1:300, 1:400, 1:500</td>
<td>695304 04 1:20, 1:25, 1:50, 1:75, 1:100, 1:125</td>
</tr>
<tr>
<td>695305 05 1:500, 1:1000, 1:1250, 1:1500, 1:2000, 1:2500</td>
<td>695306 06 1:1, 1:2, 1:25, 1:50, 1:75, 1:125</td>
</tr>
<tr>
<td>695307 07 1:1, 1:2, 1:5, 1:10, 1:20, 1:50</td>
<td>695308 08 1:2 1/2, 1:5, 1:10, 1:20, 1:50, 1:100</td>
</tr>
<tr>
<td>695314 14 1:20, 1:25, 1:33 1/3, 1:50, 1:75, 1:100</td>
<td>695309 09 1:1, 1:2, 1:5, 1:20, 1:50, 1:100</td>
</tr>
</tbody>
</table>

**FOUR-BEVEL POCKET SCALES**

Boxwood white plastic edges, black graduations. 6 inches.

| 237020 Engineer | 1:10, 1:30, 1:40, 1:50 |
| 237021 Engineer | 1:10, 1:20, 1:40, 1:50 |
| 237001 Architect | 1:1/4, 1:1/2, 1:3/4, 1:1, 1:1/2, 1:3 |

**TRIANGULAR SCALE TAPES**

Ideal for use in the office or field, each tape features a complete set of conversion scales in one small case – the perfect combination of convenience and practicality! Because the tape is twice as long as the standard engineering or architect rule, measuring large dimensions on plans takes only half the usual time.

| 745020 Engineer | 1:10, 1:20, 1:30, 1:40, 1:50, 1:60 |

**TRIANGULAR MINI SCALE 4" & 6"**

- Plastic Color Coded. With vinyl sheath.
- 690340 Architect 4" long
- 690341 Engineer 4" long
- 690310 Metric 4" long
- 690560 Architect - 6" long
- 690561 Engineer - 6" long
- 690515 Metric 6" long

---

*Call Toll Free 1800-LEVEL UP*

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**TRIANGLES**
Molded of transparent, .095' thick plastic, fluorescent for easy visibility.

<table>
<thead>
<tr>
<th>Angle</th>
<th>Size</th>
<th>Code</th>
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<tbody>
<tr>
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<td>4 inch</td>
<td>2550445</td>
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<tr>
<td></td>
<td>6 inch</td>
<td>2550645</td>
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<tr>
<td></td>
<td>8 inch</td>
<td>2565084</td>
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<td></td>
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<td>2565104</td>
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<td></td>
<td>12 inch</td>
<td>2565112</td>
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<td>60°</td>
<td>4 inch</td>
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<tr>
<td></td>
<td>6 inch</td>
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<td>8 inch</td>
<td>2565086</td>
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<tr>
<td></td>
<td>10 inch</td>
<td>2565106</td>
</tr>
<tr>
<td></td>
<td>12 inch</td>
<td>2565126</td>
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**PROTRACTORS**
Clear acrylic graduated in 1/2 increments. .090" thick, w/bevelled edges.

<table>
<thead>
<tr>
<th>Size</th>
<th>Code</th>
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<tbody>
<tr>
<td>6&quot; semicircle</td>
<td>2568766</td>
</tr>
<tr>
<td>8&quot; semicircle</td>
<td>2568768</td>
</tr>
<tr>
<td>4&quot; circular</td>
<td>2568810</td>
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<tr>
<td>6&quot; circular</td>
<td>2568776</td>
</tr>
<tr>
<td>8&quot; circular</td>
<td>2568778</td>
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**FLEXIBLE CURVE**

<table>
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<th>Code</th>
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<tr>
<td>18 inch</td>
<td>2596018</td>
</tr>
<tr>
<td>24 inch</td>
<td>2596024</td>
</tr>
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</table>

**CURVES SET**
Irregular curves are made of gray-tinted plastic. They have inking edges on both sides which permit use of the curve either side up. Set of four. (2571402)
**TECHNICO LEAD HOLDERS 780C**
Nickelled push-bottom built-in lead pointer and sliding pocket clip. For all 2mm leads.  
(2507800)

**ALVIN RETRACTABLE LEAD HOLDERS**
Press push button completely and the entire writing head retracts into the shaft ... a distinct advantage. Alvin fineline pencils protect pockets from damage.  
60003 DR03 0.3mm lead holder  
60005 DR05 0.5mm lead holder  
60007 DR07 0.7mm lead holder

**ERASER HOLDERS**
Eraser holders with plastic eraser core for pinpoint erasure of graphite markings. Retractable eraser with pocket clip.  
2520850 Holder  
2552735 Refills (one dozen)

**PLASTIC ERASER**
Thoroughly removes graphite lines from paper, vellum, and drafting film without ghosting.  
(2552650)

**LEAD POINTER**
Plastic body, rotary action for 2mm lead holders.  
(2520502)

**STANDARD PENCIL SHARPENER**
This double-hole metal sharpener accepts standard and oversized pencils. Large translucent plastic oval shavings container and screw-on top prevents messy spills.  
(2551165)
**PENCILS, LEADS, PADS 99**

**MICROGRAPH LEADS**
One dozen per tube

.3mm Mars Fineline Leads
- 2500382 250-03-HB
- 2500306 250-03-F
- 2500308 250-03-H
- 2500323 250-03-2H
- 2500338 250-03-3H

.5mm Mars Fineline Leads
- 2500582 250-05-HB
- 2500506 250-05-F
- 2500508 250-05-H
- 2500528 250-05-2H
- 2500538 250-053H

.7mm Mars Fineline Leads
- 2500782 250-07-HB
- 2500720 250-07-F
- 2500780 250-07-H
- 2500728 250-07-2H
- 2500738 250-07-3H

**MARS LUMOGRAPH DRAWING LEADS (2MM)** One dozen per box

- 2520082 200-HB
- 2520080 200-H
- 2520028 200-2H
- 2520038 200-3H
- 2520048 200-4H
- 2520058 200-5H
- 2520068 200-6H
- 25200429 200-Red

**LUMOGRAPH DRAWING PENCILS**
One dozen per box

- 2510082 100-HB
- 2510080 100-H
- 2510028 100-2H
- 2510038 100-3H
- 2510048 100-4H
- 2510058 100-5H
- 2510068 100-6H
- 2510820 100-Red

**VELLUM PAD**
Translucent vellum has excellent clarity for tracing. All-purpose paper recommended for liquid ink plotter pens, technical pens or pencils. 100% rag, 16-lb. stock, 50 sheet pad, 8 1/2 x 11 with non-photo blue grid 10 x 10 squares per inch. (2581161)
100 HOLDERS • FILING SYSTEMS

**TUFF WRITER ALUMINUM SHEET HOLDER**
Aluminum sheet holder’s bottom compartment holds up to 1” of forms; upper compartment holds 7/16” (removable for larger stacks). Holds up to 8 1/2” x 12” forms. Hinged on left side, securely latched on right side. (53284)

**BOOK TYPE LOOSE SHEET HOLDER**
Sturdy clip with E-Z open swivel bar holds forms while in use. Hinged strap holds forms tightly in storage compartment. Made from high grade, corrosion resistant aluminum. Holds up to 8 1/2” x 12” forms. (53270)

**STORAGE ACCESS HOLDER**
Storage compartment holds 3/8” stack of papers. Strong metal clip holds papers and forms in place. Sturdy piano hinge, smooth, rounded corners. Made from high grade corrosion resistant aluminum. Holds up to 8 1/2” x 12” forms. (53190)

**NEON CLIPBOARD**
Made of acrylic. Neon Yellow. 8-1/2” x 12”. (53430)

**ALL-WEATHER PEN**
Ball point pen writes underwater and upside down Black ink. (21037)

**SAFCO VERTICAL FILING SYSTEMS**

**COMPLETE ROLLING STAND SERIES**
1-Rolling Stand 5026
12-Pivot Brackets 5016
12-Binders

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
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<tbody>
<tr>
<td>5927124</td>
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<td>5927130</td>
<td>5026-30”</td>
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<tr>
<td>5927136</td>
<td>5026-36”</td>
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<td>5927142</td>
<td>5026-42”</td>
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<tr>
<td>5927189</td>
<td>Rolling stand only (5026)</td>
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**COMPLETE DROP LIFT WALL RACK SERIES**
1-Wall Bracket 5030
12-Binders

<table>
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<tr>
<td>5921230</td>
<td>5030-30”</td>
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<tr>
<td>5921236</td>
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<td>5921242</td>
<td>5030-42”</td>
</tr>
<tr>
<td>5921238</td>
<td>Wall bracket only (5030)</td>
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**COMPLETE PIVOT WALL RACK SERIES**
Wall Rack with 12-Pivot Brackets 5016
12-Binders

<table>
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<th>Size</th>
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<tr>
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<td>5916230</td>
<td>5016-30”</td>
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<td>5016-42”</td>
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<tr>
<td>5916238</td>
<td>Pivot wall rack with brackets only (5016)</td>
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**PIVOT BRACKET**
5910218
5006-12
Box of 12

**HANGING CLAMPS**
Pivot or Drop-Lift filing Clamps hold up to 100 sheets or 20 pounds. Natural aluminum with black wing knobs and end caps

<table>
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<td>5005-42”</td>
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ORDER FORM 101

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
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<td>Company Name</td>
<td>________________________________</td>
</tr>
<tr>
<td>Address</td>
<td>________________________________</td>
</tr>
<tr>
<td>City</td>
<td>________________________________</td>
</tr>
<tr>
<td>State</td>
<td>Zip</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Please specify your trade:</th>
<th>Surveyor</th>
<th>Builder</th>
<th>Contractor</th>
<th>Engineer</th>
<th>Other</th>
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</thead>
</table>

<table>
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<tr>
<th>PRODUCT #</th>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT COST</th>
<th>TOTAL COST</th>
<th>MPCharge</th>
<th>Purchase Order #</th>
<th>Check Enclosed (If ordered through mail)</th>
<th>COD (cash &amp; certified check)</th>
<th>Visa</th>
<th>Mastercard</th>
<th>AMEX</th>
<th>Discover</th>
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<table>
<thead>
<tr>
<th></th>
<th>Sub-Total</th>
<th>Sales Tax</th>
<th>Freight</th>
<th>Total</th>
</tr>
</thead>
</table>

MPCharge
Check Enclosed (If ordered through mail)
COD (cash & certified check)
Visa
Mastercard
AMEX
Discover
($50 min. required for charge card)
Expiration date
Signature

IMPORTANT
1. Print FAX FORM.
2. Write up your order on copy and fax your order to 201-488-9020.