

2005 Data Collector/Controller Software Survey—Optical Surveying

MANUFACTURER/DISTRIBUTOR	Carlson Software	Carlson Software	kubit GmbH	MicroSurvey Software Inc.	Prosurv LLC	RAMSS Inc.	RAMSS Inc.
MANUFACTURER (ENTER SAME UNLESS ABOVE IS A DISTRIBUTOR)	Same	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	Carlson SurvCE	Carlson Field	TachyCAD [2]	FieldGenius 2006	Prosurv CEZ.NET	Student Cogo	SiteStake
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	\$995-\$2995	\$2995	\$2000-\$3000	\$995	\$299 or \$599 (GPS)	\$149	\$249
- Technical support	A	A	A	B, \$99.50 per year	A, toll-free or E-mail	A, 12	A
- Warranty (months)	N/A	N/A	N/A	N/A	1 year free upgrades	12	12
- Money-back guarantee (months)	N/A	1	1	1	1	1	1
PLATFORM & INSTRUMENTS							
- Name/model of handheld computer or onboard total station	Win CE computers	[1]	AutoCAD application	Win CE Computers	Pocket PCs [8]	HP48GX	HP48GX
- Operating Systems:							
- Windows systems (specify)	CE	Win 98 or higher	Like AutoCAD	CE	[9]		
- Other (specify)							
- Minimum RAM required (if optional/adjustable on above device)	64	64 MB	Like AutoCAD	32 MB	64 MB	N/A	N/A
- Minimum screen size required	N/A	N/A	Like AutoCAD	N/A	240 x 320	N/A	N/A
- Color display support? (Y/N)	Yes	Yes	Like AutoCAD	Yes	Yes	N	N
- Laser rangefinders? If yes, # of brands.	No	No		Yes, 2	0	No	1
- Digital levels? If yes, # of brands.	No	No		No	Yes, 3	No	0
- Total stations? If yes, # of brands.	Yes, all	Yes, all major brands	[3]	Yes, all major brands	8	No	7
- Robotic total stations? If yes, # of brands.	Yes, all	Yes, all major brands		Yes, all major brands		No	0
- GPS receivers (non-RTK)? If yes, # of brands.	No	Yes, all major brands		Yes, all major brands	0	No	0
- GPS receivers (RTK)? If yes, # of brands.	Yes, all	Yes, all major brands		Yes, all major brands	Yes, 2 [10]	No	0
- Other instruments? Describe.			[4]				
MEASUREMENT SETUP							
- Set All Instrument Parameters?	Yes	Yes	Yes	Yes	Yes	No	Yes
- Set All Measurement Parameters?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Set up and Edit Point Description quick-pick lists?	Yes	Yes	No	Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	Yes	Yes	Yes	Yes	Yes	No	No
DATA STORAGE AND COLLECTION							
- Maximum number of point measurements that can be stored as raw or coordinates with point number and description	Unlimited	Unlimited		Unlimited	15,000 per job	2000	2000
- Stores multiple jobs? If yes, # of jobs? (N#/Unlimited)	Yes	Unlimited		Unlimited	Unlimited	Unlimited	Unlimited
- Record descriptive notes?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Record point code (not number)?	Yes	Yes	Yes	Yes	Yes	No	No
- Alphanumeric identification of points?	Yes	Yes	Yes	Yes	Yes	No	No
- Record height of instrument? (Y/N/Automatically)	Yes		Yes	Yes	Automatically		
- Record height of target? (Y/N/Automatically)	Yes		Yes	Yes	Automatically		
- Slope dist/horiz & vert/zen angle?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION							
- Manual Data Entry?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate/Descriptor searching?	Yes	Yes	Yes	Yes	Yes	No	No
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Angles Direct and Reversed?	Yes	Yes	Yes	Yes	Yes	No	No
- Automated Plot Codes (linework)?	Yes	Yes	Yes	Yes	Yes	No	No
- Time Stamping of Data?	Yes	Yes	Yes	Yes	Yes	No	No
DATA AUTOMATION							
- Point Code?	Yes	Yes	Yes	Yes	Yes	No	No
- Point Number + 1?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes	Yes	Yes	Yes	No	No	No
- Height of Target?	Yes	Yes	Yes	Yes	Yes, all	Yes	Yes
FEATURES							
- Angle calculator?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- COGO Functions?	Yes	Yes	Yes	Yes	Yes [11]	Yes	Yes
- Traverse Computations?	Yes	Yes	No	Yes	Yes	Yes	Yes
- Backsight Selection after Traverse?	Yes	Yes	No	Yes	Yes	Yes	Yes
- Topography?	Yes	Yes	Yes	Yes	Yes	No	No
- Stakeout?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Radial stakeout?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a Line?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout of alignments based on templates?	Yes	Yes	Yes	Yes	No	No	No
- Offset Stake?	Yes	Yes	Yes	Yes	Yes [12]	Yes	Yes
- Slope Stake?	Yes	Yes	Yes	Yes	Yes [13]	No	Yes
- Inverse?	Yes	Yes	Yes	Yes	Yes [14]	Yes	Yes
- Standard 2 and 3 point resection?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Multiple point least squares resection?	Yes	Yes	Yes	Yes	No	No	No
- Remote Elevation?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Store Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Display Raw Data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Collimation Correction?	Yes	Yes	Yes	No	Yes	No	No
- Cut/Fill Data Storage/Display?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- DTM Surface Area Cut/Fill?	Yes	Yes	Yes	Yes	No	No	No
- Volume Calculations?	Yes (v2.0)	Yes	Yes	Yes	No	Yes	Yes
- Leveling Routines?	Yes	Yes	Yes	No	Yes [15]	Yes	Yes
- Can Data Collector Provide CSV/ASCII File export?	Yes	Yes	Yes	Yes	Yes	No	Yes
- Send Data Direct to a Printer?	Yes	Yes	Yes	No	No	Yes	Yes
INTERACTIVE MAP							
- View data point map?	Yes	Yes	Yes	Yes	Yes	No	No
- View point codes/names?	Yes	Yes	Yes	Yes	Yes	No	No
- Pan/Zoom map?	Yes	Yes	Yes	Yes	Yes	No	No
- Graphically select point for stakeout, COGO, editing, etc.?	Yes	Yes	Yes	Yes	Yes	No	No
- View background map? (DXF, etc.)	Yes	DWG (native)		Yes			
- Support user-selected display of multiple layers?	Yes	Yes	Yes	Yes	Yes	No	No
- Layer visibility thresholds based on zoom?	Yes	Yes	Yes	Yes	Yes	No	No
OPTIONAL MODULES & SPECIAL FEATURES							
- Does the software support import or manual entry of road alignments?	Yes	Yes		Yes	[16]	Manual entry	Manual
- Describe other Special Features				[6]	Bluetooth supported	[73]	[74]
- Foreign languages supported? (specify)	Yes, call for current		German/English	No	[17]		
- Describe			[5]	[7]	[18]		

N/A=Not Applicable
Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—Optical Surveying

MANUFACTURER/DISTRIBUTOR	RAMSS Inc.	SMI	SMI	SMI	SMI	Soft-Art	Sokkia
MANUFACTURER (ENTER SAME UNLESS ABOVE IS A DISTRIBUTOR)	Same	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	Party Chief Advanced CSO & Collection	Construction	Construction with GPS/Robotic	Data Collection	Data Collection with GPS/Robotic	Pocket Surveyor	SDR Level 5
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	\$598	\$1600	\$2600	\$700	\$1700	\$299 [27]	Contact Sokkia A, 800/255-3913
- Technical support	A	B, C	B, C	B, C	B, C	A	A, 800/255-3913
- Warranty (months)	12	12	12	12	12	1	12
- Money-back guarantee (months)	1	1	1	1	1	1	1
PLATFORM & INSTRUMENTS							
- Name/model of handheld computer or onboard total station	HP48GX	[19]	[19]	[19]	[19]	[23]	[29]
- Operating Systems:							
- Windows systems (specify)		[20]	[20]	[20]	[20]	[24]	Window CE, Pocket PC
- Other (specify)		N/A	N/A				
- Minimum RAM required (if optional/adjustable on above device)	128K	16 MB	16 MB	16 MB	16 MB	48 MB	16 MB
- Minimum screen size required	N/A	N/A	N/A	N/A		N/A	240 x 320
- Color display support? (Y/N)	N	Yes	Yes	Yes	Yes	Yes	Yes
- Laser rangefinders? If yes, # of brands.	1	Yes, 4	Yes, 4	Yes, 4	Yes, 4	No	Yes, 2
- Digital levels? If yes, # of brands.	0	Yes, 3	Yes, 3	Yes, 3	Yes, 3	No	Yes, 3
- Total stations? If yes, # of brands.	7	Yes, 11	Yes, 11	Yes, 11	Yes, 11	5	Yes, 7
- Robotic total stations? If yes, # of brands.	1	No	Yes, 5	No	Yes, 5	1	Yes, 1
- GPS receivers (non-RTK)? If yes, # of brands.	0	No	Yes, GGA	No	Yes, GGA	1	Yes, 2
- GPS receivers (RTK)? If yes, # of brands.	0	No	Yes, 5	No	Yes, 5	1	Yes, 2
- Other instruments? Describe.		[21]	[21]	[21]	[21]		
MEASUREMENT SETUP							
- Set All Instrument Parameters?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Set All Measurement Parameters?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Set up and Edit Point Description quick-pick lists?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	No	Yes, macros	Yes, macros	Yes, macros	Yes, macros	No	No
DATA STORAGE AND COLLECTION							
- Maximum number of point measurements that can be stored as raw or coordinates with point number and description	24000	9600 per 1MB	9600 per 1 MB	9600 per 1MB	9600 per 1MB	[28]	500,000+ [30]
- Stores multiple jobs? If yes, # of jobs? (N/#/Unlimited)	240	Unlimited	Unlimited	Yes, unlimited	Yes, unlimited	Unlimited	Yes
- Record descriptive notes?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Record point code (not number)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric identification of points?	No	No	No	No	No	Yes	Yes
- Record height of instrument? (Y/N/Automatically)		Yes	Yes	Yes	Yes	Yes	Yes
- Record height of target? (Y/N/Automatically)		Yes	Yes	Yes	Yes	Yes	Yes
- Slope dist/horiz & vert/zen angle?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION							
- Manual Data Entry?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate/Descriptor searching?	No	Yes	Yes	Yes	Yes	Yes	Yes
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes	No
- Angles Direct and Reversed?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Automated Plot Codes (linework)?	Yes	Yes	Yes	Yes	Yes	No	Yes
- Time Stamping of Data?	No	Yes	Yes	Yes	Yes	No	Yes
DATA AUTOMATION							
- Point Code?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Point Number + 1?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes	No	No	No	No	Yes	Yes
- Height of Target?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FEATURES							
- Angle calculator?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- COGO Functions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Traverse Computations?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Backsight Selection after Traverse?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Topography?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Radial stakeout?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a Line?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout of alignments based on templates?	Yes	Yes	Yes	No	No	[25]	Yes
- Offset Stake?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Slope Stake?	Yes	Yes	Yes	No	No	Yes	Yes
- Inverse?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Standard 2 and 3 point resection?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Multiple point least squares resection?	No	No	No	No	No	Yes	Yes
- Remote Elevation?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Store Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Display Raw Data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Collimation Correction?	No	No	No	No	No	Yes	Yes
- Cut/Fill Data Storage/Display?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- DTM Surface Area Cut/Fill?	No	No	No	No	No	Yes	Yes
- Volume Calculations?	Yes	Yes	Yes	Yes	Yes	No	Yes
- Leveling Routines?	Yes	Yes	Yes	Yes	Yes	No	Yes, with SDL30
- Can Data Collector Provide CSV/ASCII File export?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Send Data Direct to a Printer?	Yes	Yes	Yes	Yes	Yes	No	Yes
INTERACTIVE MAP							
- View data point map?	No	Yes	Yes	Yes	Yes	Yes	Yes
- View point codes/names?	No	Pt #s	Pt #s	Pt #s	Pt #s	Yes	Yes
- Pan/Zoom map?	No	No	No	No	No	Yes	Yes
- Graphically select point for stakeout, COGO, editing, etc.?	No	No	No	No	No	Yes	No
- View background map? (DXF, etc.)	No	No	No	No	No	PCS	No
- Support user-selected display of multiple layers?	No	No	No	No	No	Yes	No
- Layer visibility thresholds based on zoom?	No	No	No	No	No	No	No
OPTIONAL MODULES & SPECIAL FEATURES							
- Does the software support import or manual entry of road alignments?	Yes	Yes	Yes	No	No	PC Survey	Yes
- Describe other Special Features	Automated gradesheet [25]		[22]		[22]	[26]	
- Foreign languages supported? (specify)							Yes
- Describe							Z

N/A=Not Applicable
Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—Optical Surveying

MANUFACTURER/DISTRIBUTOR	Topcon	Topcon	Topcon	Topcon	Topcon	Traverse PC
MANUFACTURER (ENTER SAME UNLESS ABOVE IS A DISTRIBUTOR)	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	TopSURV Pro Robotics [31]	TopSURV Pro [31]	TopSURV standard	TopSURV Onboard	TopSURV Robotics	THH Standard
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	Contact Topcon dealer	Contact Topcon dealer	Contact Topcon dealer	Contact Topcon dealer	Contact Topcon dealer	\$499
- Technical support	866/4-TOPCON	866/4-TOPCON	866/4-TOPCON	866/4-TOPCON	866/4-TOPCON	B, C [76]
- Warranty (months)	12	12	12	12	12	3
- Money-back guarantee (months)	N/A	N/A	N/A	N/A	N/A	1
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer or onboard total station	FC 100/FC 2000	FC 100/ FC 2000	FC-100/FC-2000	GPT 720/7000/7000 series	FC 100/ FC 2000	[77]
- Operating Systems:						
- Windows systems (specify)	CE.NET	CE.NET	CE.NET/Pocket PC	CE.NET	CE.NET	N/A
- Other (specify)						MS-DOS
- Minimum RAM required (if optional/adjustable on above device)	64 MB	64 MB	64 MB	64 MB	64 MB	2 Mb
- Minimum screen size required	240 x 320	240 x 320	320 x 240	320 X 240	240 x 320	[78]
- Color display support? (Y/N)	Yes	Yes	Yes	Yes	Yes	No
- Laser rangefinders? If yes, # of brands.	No	No	No	No	No	1
- Digital levels? If yes, # of brands.	No	Yes	No	No	No	No
- Total stations? If yes, # of brands.	Yes	Yes	Yes	Yes	Yes	All current
- Robotic total stations? If yes, # of brands.	Yes	No	No	No	Yes	No
- GPS receivers (non-RTK)? If yes, # of brands.	No	No	No	No	No	No
- GPS receivers (RTK)? If yes, # of brands.	No	No	No	No	No	No
- Other instruments? Describe.					No	
MEASUREMENT SETUP						
- Set All Instrument Parameters?	Yes	Yes	Yes	Yes	Yes	No
- Set All Measurement Parameters?	Yes	Yes	Yes	Yes	Yes	Yes
- Set up and Edit Point Description quick-pick lists?	Yes	Yes	Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	Yes	Yes	Yes	Yes	Yes	Yes
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coordinates with point number and description	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited [79]
- Stores multiple jobs? If yes, # of jobs? (N#/Unlimited)	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited [79]
- Record descriptive notes?	Yes	Yes	Yes	Yes	Yes	Yes
- Record point code (not number)?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric identification of points?	Yes	Yes	Yes	Yes	Yes	Yes
- Record height of instrument? (Y/N/Automatically)	Automatically	Automatically	Automatically	Automatically	Automatically	Yes
- Record height of target? (Y/N/Automatically)	Automatically	Automatically	Automatically	Automatically	Automatically	Yes
- Slope dist/horiz & vert/zen angle?	Yes	Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Data Entry?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate/Descriptor searching?	Yes	Yes	Yes	Yes	Yes	No
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Angles Direct and Reversed?	Yes	Yes	Yes	Yes	Yes	Yes
- Automated Plot Codes (linework)?	Yes	Yes	Yes	Yes	Yes	No
- Time Stamping of Data?	Yes	Yes	Yes	Yes	No	Yes
DATA AUTOMATION						
- Point Code?	Yes	Yes	Yes	Yes	Yes	Yes
- Point Number + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Height of Target?	Yes	Yes	Yes	Yes	Yes	Yes
FEATURES						
- Angle calculator?	Yes	Yes	Yes	Yes	Yes	Yes
- COGO Functions?	Yes	Yes	Yes	Yes	Yes	Yes
- Traverse Computations?	Yes	Yes	Yes	Yes	Yes	Yes
- Backsight Selection after Traverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Topography?	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Radial stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a Line?	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout of alignments based on templates?	Yes	Yes	Yes	Yes	Yes	No
- Offset Stake?	Yes	Yes	Yes	Yes	Yes	Yes
- Slope Stake?	Yes	Yes	Yes	Yes	Yes	No
- Inverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Standard 2 and 3 point resection?	Yes	Yes	Yes	Yes	Yes	Yes
- Multiple point least squares resection?	Yes	Yes	Yes	Yes	Yes	No
- Remote Elevation?	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes
- Store Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes
- Display Raw Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Collimation Correction?	Yes	Yes	Yes	Yes	Yes	No
- Cut/Fill Data Storage/Display?	Yes	Yes	Yes	Yes	Yes	Yes
- DTM Surface Area Cut/Fill?	Yes	Yes	Yes	Yes	Yes	No
- Volume Calculations?	Yes	Yes	Yes	Yes	Yes	No
- Leveling Routines?	No	Yes	Yes	No	No	No
- Can Data Collector Provide CSV/ASCII File export?	Yes	Yes	Yes	Yes	Yes	Yes
- Send Data Direct to a Printer?	No	No	No	No	No	Yes
INTERACTIVE MAP						
- View data point map?	Yes	Yes	Yes	Yes	Yes	Yes
- View point codes/names?	Yes	Yes	Yes	Yes	Yes	Yes
- Pan/Zoom map?	Yes	Yes	Yes	Yes	Yes	Yes
- Graphically select point for stakeout, COGO, editing, etc.?	Yes	Yes	Yes	Yes	Yes	No
- View background map? (DXF, etc.)	[32]	[32]	[32]	[32]	[32]	No
- Support user-selected display of multiple layers?	Yes	Yes	Yes	Yes	Yes	Yes
- Layer visibility thresholds based on zoom?	Yes	No	No	No	No	No
OPTIONAL MODULES & SPECIAL FEATURES						
- Does the software support import or manual entry of road alignments?	Yes	Yes	No	Yes	No	No
- Describe other Special Features	Upgradeable		[33]	[34]	Optical	
- Foreign languages supported? (specify)	All major languages	All major languages	All major languages	All major languages	All major languages	
- Describe						

N/A=Not Applicable
Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—Optical Surveying

MANUFACTURER/DISTRIBUTOR	Trimble PC	Trimble	TDS	TDS	Trimble	Trimble
MANUFACTURER (ENTER SAME UNLESS ABOVE IS A DISTRIBUTOR)	Same	Same	Trimble	Trimble	Same	Same
PRODUCT NAME OR MODEL NUMBER	THH Professional	Geodimeter Control Unit	TDS Survey Pro with TSX	TDS Survey Pro with TSX	Survey Controller 11.10	Survey Controller 11.10
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	\$899	Contact distributor	Contact distributor	Contact distributor	Contact distributor	Contact distributor
- Technical support	B, C [76]	A	A	A	A	A
- Warranty (months)	3	12	12	12	12	12
- Money-back guarantee (months)	1					
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer or onboard total station	[77]	Geodimeter	[36]	[38]	[41]	Trimble TSC2
- Operating Systems:						
- Windows systems (specify)	N/A	N/A	Win CE .NET	[39]	Win CE .NET	[39]
- Other (specify)	MS-DOS	Proprietary			N/A	
- Minimum RAM required (if optional/adjustable on above device)	2 Mb	N/A	32 MB	32 MB	64 MB	64 MB
- Minimum screen size required	[78]	N/A	320 x 240	320 x 240	N/A	N/A
- Color display support? (Y/N)	No	No	Yes	Yes	Yes	Yes
- Laser rangefinders? If yes, # of brands.	1	No	Yes, 4	Yes, 4	Yes, 5	Yes, 5
- Digital levels? If yes, # of brands.	No	No	No	No	No	No
- Total stations? If yes, # of brands.	All current	Yes, 2	Yes, 8	Yes, 8	Yes, 8 [42]	Yes, 8 [42]
- Robotic total stations? If yes, # of brands.	No	Yes, 2	Yes, 5	Yes, 5	Yes, 2	Yes, 2
- GPS receivers (non-RTK)? If yes, # of brands.	No	No	Yes, 5	Yes, 5	Yes, 1	Yes, 1
- GPS receivers (RTK)? If yes, # of brands.	[80]	No	Yes, 5	Yes, 5	Yes, 1	Yes, 1
- Other instruments? Describe.		N/A			[43]	[43]
MEASUREMENT SETUP						
- Set All Instrument Parameters?	No	Yes	Yes	Yes	Yes	Yes
- Set All Measurement Parameters?	Yes	Yes	Yes	Yes	Yes	Yes
- Set up and Edit Point Description quick-pick lists?	Yes	No	Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	Yes	No	Yes	Yes	Yes	Yes
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coordinates with point number and description	Unlimited [79]	5,000/50,000	[37]	[37]	Min >10,000	Min >10,000
- Stores multiple jobs? If yes, # of jobs? (N#/Unlimited)	Unlimited [79]	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
- Record descriptive notes?	Yes	Yes	Yes	Yes	Yes	Yes
- Record point code (not number)?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric identification of points?	Yes	Yes	Yes	Yes	Yes	Yes
- Record height of instrument? (Y/N/Automatically)	Yes	Automatically	Automatically	Automatically	Yes	
- Record height of target? (Y/N/Automatically)	Yes	Automatically	Automatically	Automatically	Yes	
- Slope dist/horiz & vert/zen angle?	Yes	Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Data Entry?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate/Descriptor searching?	Yes	Yes	Yes	Yes	Yes	Yes
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Angles Direct and Reversed?	Yes	Yes	Yes	Yes	Yes	Yes
- Automated Plot Codes (linework)?	Yes	Yes	Yes	Yes	Yes	Yes
- Time Stamping of Data?	Yes	Yes	Yes	Yes	Yes	Yes
DATA AUTOMATION						
- Point Code?	Yes	Yes	Yes	Yes	Yes	Yes
- Point Number + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Height of Target?	Yes	Yes	Yes	Yes	Yes	Yes
FEATURES						
- Angle calculator?	Yes	Yes	Yes	Yes	Yes	Yes
- COGO Functions?	Yes	Yes	Yes	Yes	Yes	Yes
- Traverse Computations?	Yes	Yes	Yes	Yes	Yes	Yes
- Backsight Selection after Traverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Topography?	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Radial stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a Line?	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout of alignments based on templates?	No	Yes	Yes	Yes	Yes	Yes
- Offset Stake?	Yes	Yes	Yes	Yes	Yes	Yes
- Slope Stake?	No	Yes	Yes	Yes	Yes	Yes
- Inverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Standard 2 and 3 point resection?	Yes	Yes	Yes	Yes	Yes	Yes
- Multiple point least squares resection?	No	Yes	Yes	Yes	Yes	Yes
- Remote Elevation?	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate Coordinates?	Yes	Yes	Yes, in real-time	Yes, in real-time	Yes	Yes
- Store Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes
- Display Raw Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Collimation Correction?	No	Yes	Yes	Yes	Yes	Yes
- Cut/Fill Data Storage/Display?	Yes	Yes	Yes	Yes	Yes	Yes
- DTM Surface Area Cut/Fill?	No	No	Yes	Yes	Yes	Yes
- Volume Calculations?	No	Yes	Yes	Yes	No	No
- Leveling Routines?	No	Yes	Yes	Yes	No	No
- Can Data Collector Provide CSV/ASCII File export?	Yes	Yes	Yes	Yes	Yes	Yes
- Send Data Direct to a Printer?	Yes	No	No	No	No	No
INTERACTIVE MAP						
- View data point map?	Yes	No	Yes	Yes	Yes	Yes
- View point codes/names?	Yes	No	Yes	Yes	Yes	Yes
- Pan/Zoom map?	Yes	No	Yes	Yes	Yes	Yes
- Graphically select point for stakeout, COGO, editing, etc.?	No	No	Yes	Yes	Yes	Yes
- View background map? (DXF, etc.)	No	N/A	Yes	ASCII DXF	[44]	[44]
- Support user-selected display of multiple layers?	Yes	No	Yes	Yes	Yes	Yes
- Layer visibility thresholds based on zoom?	No	No	No	No	No	No
OPTIONAL MODULES & SPECIAL FEATURES						
- Does the software support import or manual entry of road alignments?	Yes	Yes	Yes	Yes	Yes	Yes
- Describe other Special Features	Multi-layer attributing	Contact distributor	Contact distributor	Bluetooth capable	Bluetooth capable	[40]
- Foreign languages supported? (specify)		Yes [35]	Contact distributor	Contact distributor	Yes [45]	Yes [45]
- Describe				[40]		z

N/A=Not Applicable

Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—Optical Surveying

MANUFACTURER/DISTRIBUTOR	Trimble	Tripod Data Systems	Tripod Data Systems	Tripod Data Systems	Tripod Data Systems	Tripod Data Systems
MANUFACTURER (ENTER SAME UNLESS ABOVE IS A DISTRIBUTOR)	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	Site Controller Software (SCS900)	COGO for HP 48GX	Survey Standard for Windows CE	Survey Pro	Survey Pro Robotics/Max	Survey Pro GPS/Max for Windows CE
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	Contact distributor	\$159	\$1000	\$1700	\$2200/\$3300	\$2900/\$3300
- Technical support	A	A	A	A	A	A
- Warranty (months)	12	3	12	12	12	12
- Money-back guarantee (months)		1	1	1	1	1
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer or onboard total station	Trimble/TSC2	HP 48GX [48]	TDS Ranger/TDS Recon	TDS Ranger/TDS Recon	TDS Ranger/TDS Recon	TDS Ranger/TDS Recon
- Operating Systems:						
- Windows systems (specify)	[39]		[39]	[39]	[39]	[39]
- Other (specify)			Windows CE.NET	Windows CE.NET	Windows CE.NET	Windows CE.NET
- Minimum RAM required (if optional/adjustable on above device)	64 MB	512K RAM card	32 MB	32 MB	32 MB	32 MB
- Minimum screen size required	N/A		320 x 240	320 x 240	320 x 240	320 x 240
- Color display support? (Y/N)	Yes	No	Yes	Yes	Yes	Yes
- Laser rangefinders? If yes, # of brands.	No	0	4	4	4	4
- Digital levels? If yes, # of brands.	No	0	4 [49]	4 [49]	4 [49]	4 [49]
- Total stations? If yes, # of brands.	Yes, 2	0	8	8	8	8
- Robotic total stations? If yes, # of brands.	Yes, 2	0	5 [50]	5 [50]	5	5 [50]
- GPS receivers (non-RTK)? If yes, # of brands.	No	0	0	0	0	0
- GPS receivers (RTK)? If yes, # of brands.	Yes, 1	0	0	0	5 [54]	5
- Other instruments? Describe.	[43]					
MEASUREMENT SETUP						
- Set All Instrument Parameters?	Yes		Yes	Yes	Yes	Yes
- Set All Measurement Parameters?	Yes		Yes	Yes	Yes	Yes
- Set up and Edit Point Description quick-pick lists?	Yes		Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	Yes		Yes [51]	Yes [51]	Yes [51]	Yes [51]
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coordinates with point number and description	Min > 10,000	5000	[52]	[52]	[52]	[52]
- Stores multiple jobs? If yes, # of jobs? (N#/Unlimited)	Unlimited		Unlimited	Unlimited	Unlimited	Unlimited
- Record descriptive notes?	No		Yes	Yes	Yes	Yes
- Record point code (not number)?	Yes		Yes	Yes	Yes	Yes
- Alphanumeric identification of points?	Yes		Yes	Yes	Yes	Yes
- Record height of instrument? (Y/N/Automatically)	Yes		Automatically	Automatically	Automatically	Automatically
- Record height of target? (Y/N/Automatically)	Yes		Automatically	Automatically	Automatically	Automatically
- Slope dist/horiz & vert/zen angle?	No		Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Data Entry?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate/Descriptor searching?	Yes		Yes	Yes	Yes	Yes
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Angles Direct and Reversed?	No		Yes	Yes	Yes	Yes
- Automated Plot Codes (linework)?	Yes		Yes	Yes	Yes	Yes
- Time Stamping of Data?	Yes		Yes	Yes	Yes	Yes
DATA AUTOMATION						
- Point Code?	Yes		Yes	Yes	Yes	Yes
- Point Number + 1?	Yes		Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes		Yes	Yes	Yes	Yes
- Height of Target?	Yes		Yes	Yes	Yes	Yes
FEATURES						
- Angle calculator?	Yes	Yes	Yes	Yes	Yes	Yes
- COGO Functions?	Yes	Yes	Yes	Yes	Yes	Yes
- Traverse Computations?	No	Yes	Yes	Yes	Yes	Yes
- Backsight Selection after Traverse?	No		Yes	Yes	Yes	Yes
- Topography?	Yes		Yes	Yes	Yes	Yes
- Stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Radial stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a Line?	Yes		Yes	Yes	Yes	Yes
- Stakeout of alignments based on templates?	No		Yes	Yes	Yes	Yes
- Offset Stake?	Yes		No	Yes	Yes	Yes
- Slope Stake?	Yes		No	Yes	Yes	Yes
- Inverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Standard 2 and 3 point resection?	Yes	Yes	Yes	Yes	Yes	Yes
- Multiple point least squares resection?	No		Yes	Yes	Yes	Yes
- Remote Elevation?	No	Yes	Yes	Yes	Yes	Yes
- Calculate Coordinates?	Yes	Yes	Yes, in real-time	Yes, in real-time	Yes, in real-time	Yes, in real-time
- Store Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes
- Display Raw Data?	Yes		Yes	Yes	Yes	Yes
- Collimation Correction?	Yes		Yes	Yes	Yes	Yes
- Cut/Fill Data Storage/Display?	Yes		Yes	Yes	Yes	Yes
- DTM Surface Area Cut/Fill?	Yes		No	Yes	Yes	Yes
- Volume Calculations?	Yes	Yes	No	Yes	Yes	Yes
- Leveling Routines?	No	Yes	No	No	Yes	No
- Can Data Collector Provide CSV/ASCII File export?	Yes		Yes	Yes	Yes	Yes
- Send Data Direct to a Printer?	No	Yes	No	No	No	No
INTERACTIVE MAP						
- View data point map?	Yes		Yes	Yes	Yes	Yes
- View point codes/names?	Yes		Yes	Yes	Yes	Yes
- Pan/Zoom map?	Yes		Yes	Yes	Yes	Yes
- Graphically select point for stakeout, COGO, editing, etc.?	Yes		Yes	Yes	Yes	Yes
- View background map? (DXF, etc.)	Yes		No	Yes	Yes	Yes
- Support user-selected display of multiple layers?	Yes		Yes	Yes	Yes	Yes
- Layer visibility thresholds based on zoom?	No		Yes	Yes	Yes	Yes
OPTIONAL MODULES & SPECIAL FEATURES						
- Does the software support import or manual entry of road alignments?	Yes		Yes, import	Yes	Yes	Yes
- Describe other Special Features	[46]		[53]	[53]	[53]	[53]
- Foreign languages supported? (specify)	Yes [47]					
- Describe						

N/A=Not Applicable
Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—Optical Surveying

MANUFACTURER/DISTRIBUTOR	Tripod Data Systems	Tripod Data Systems	Tripod Data Systems	XYZworks	XYZworks	XYZworks
MANUFACTURER (ENTER SAME UNLESS ABOVE IS A DISTRIBUTOR)	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	Survey Standard for HP 48GX	Survey Pro for HP 48GX	COGO for Pocket PC	Fieldworks	Fieldworks with Fieldbook	Fieldworks with HP IPAQ 2110
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	\$599	\$799	\$99	\$595	\$1995	\$995
- Technical support	A	A	A	A, 30 days	A, 30 days	A, 30 days
- Warranty (months)	3	3	12	12	24	12
- Money-back guarantee (months)	1	1	1	1	1	1
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer or onboard total station	HP 48GX [48]	HP 48GX [48]	Pocket PCs [55]	[57]	XYZworks Fieldbook	iPAQ 2110 [69]
- Operating Systems:						
- Windows systems (specify)			[56]	Windows CE	Windows CE	Windows CE
- Other (specify)				PocketPC		PocketPC
- Minimum RAM required (if optional/adjustable on above device)	512K RAM card	512K RAM card	16 MB	32 MB	64 MB, 128 MB optional	64 MB
- Minimum screen size required			320 x 240	240 x 320	240 x 320	240 x 320
- Color display support? (Y/N)	No	No	Yes	Yes	Yes	Yes
- Laser rangefinders? If yes, # of brands.	0	3		Yes, 3	Yes, 3	Yes, 3
- Digital levels? If yes, # of brands.	0	4		No	No	No
- Total stations? If yes, # of brands.	6	6		Yes, 9	Yes, 9	Yes, 9
- Robotic total stations? If yes, # of brands.	0	0		Yes, 4	Yes, 4	Yes, 4
- GPS receivers (non-RTK)? If yes, # of brands.	0	0		Yes, 6	Yes, 6	Yes, 6
- GPS receivers (RTK)? If yes, # of brands.	0	0		Yes, 5	Yes, 5	Yes, 5
- Other instruments? Describe.				MDL Scanning Laser	MDL Scanning Laser	MDL Scanning Laser
MEASUREMENT SETUP						
- Set All Instrument Parameters?	Yes	Yes		Yes	Yes	Yes
- Set All Measurement Parameters?	Yes	Yes		Yes	Yes	Yes
- Set up and Edit Point Description quick-pick lists?	Yes	Yes		Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	No	No		Yes [58]	Yes [58]	Yes [58]
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coordinates with point number and description	5.2K / 10.4K	5.2K / 10.4K	Memory dependent	500,000	500,000	500,000
- Stores multiple jobs? If yes, # of jobs? (N#/Unlimited)	Unlimited	Unlimited	Unlimited	Yes, unlimited	Yes, unlimited	Yes, unlimited
- Record descriptive notes?	Yes	Yes		Yes	Yes	Yes
- Record point code (not number)?	Yes	Yes		Yes	Yes	Yes
- Alphanumeric identification of points?	No	No		No	No	No
- Record height of instrument? (Y/N/Automatically)				Yes	Yes	Yes
- Record height of target? (Y/N/Automatically)				Yes	Yes	Yes
- Slope dist/horiz & vert/zen angle?	Yes	Yes		Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Data Entry?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes [59]	Yes [59]	Yes [59]
- Coordinate/Descriptor searching?	Yes	Yes		No	No	No
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Angles Direct and Reversed?	Yes	Yes		Yes	Yes	Yes
- Automated Plot Codes (linework)?	Yes	Yes		Yes	Yes [64]	Yes
- Time Stamping of Data?	Yes	Yes		Yes	Yes	Yes
DATA AUTOMATION						
- Point Code?	Yes	Yes		Yes	Yes	Yes
- Point Number + 1?	Yes	Yes		Yes	Yes	Yes
- Alphanumeric + 1?	No	No		No	No	No
- Height of Target?	Yes	Yes		Yes	Yes	Yes
FEATURES						
- Angle calculator?	Yes	Yes	Yes	Yes	Yes	Yes
- COGO Functions?	Yes	Yes	Yes	Yes [60]	Yes	Yes [60]
- Traverse Computations?	Yes	Yes	Yes	Yes	Yes	Yes [70]
- Backsight Selection after Traverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Topography?	Yes	Yes	Yes	Yes	Yes	Yes
- Stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Radial stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a Line?	No	Yes		Yes	Yes	Yes
- Stakeout of alignments based on templates?	No	No		Yes	Yes	Yes
- Offset Stake?	Yes	Yes		Yes	Yes	Yes
- Slope Stake?	Yes	Yes		Yes	Yes	Yes
- Inverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Standard 2 and 3 point resection?	Yes	Yes	Yes	Yes [61]	Yes [67]	Yes [71]
- Multiple point least squares resection?	No	No		No	No	No
- Remote Elevation?	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate Coordinates?	Yes	Yes	Yes	Yes [59]	Yes [59]	Yes [59]
- Store Coordinates?	Yes	Yes	Yes	Yes	Yes	Yes
- Display Raw Data?	Yes	Yes		Yes [62]	Yes	Yes [72]
- Collimation Correction?	Yes	Yes		No	No	No
- Cut/Fill Data Storage/Display?	Yes	Yes		Yes	Yes	Yes
- DTM Surface Area Cut/Fill?	No	No		No	No	No
- Volume Calculations?	No	No		No	No	No
- Leveling Routines?	Yes	Yes		Yes [63]	Yes [63]	Yes [63]
- Can Data Collector Provide CSV/ASCII File export?	Yes	Yes		Yes	Yes	Yes
- Send Data Direct to a Printer?	Yes	Yes		No	No	No
INTERACTIVE MAP						
- View data point map?	No	No	Yes	Yes	Yes	Yes
- View point codes/names?	No	No	Yes	Yes	Yes	Yes
- Pan/Zoom map?	No	No	Yes	Yes [64]	Yes [64]	Yes [64]
- Graphically select point for stakeout, COGO, editing, etc.?	No	No	Yes	Yes [64]	Yes [64]	Yes [64]
- View background map? (DXF, etc.)				Yes [64]	Yes [64]	Yes [64]
- Support user-selected display of multiple layers?	No	No	Yes	Yes [64]	Yes [64]	Yes [64]
- Layer visibility thresholds based on zoom?	No	No		Yes [64]	Yes [64]	Yes [64]
OPTIONAL MODULES & SPECIAL FEATURES						
- Does the software support import or manual entry of road alignments?	No	Yes		Yes	Yes	Yes
- Describe other Special Features				[65]	[68]	[68]
- Foreign languages supported? (specify)	Spanish			English only	English only	English only
- Describe				[66]	[66]	[66]

N/A=Not Applicable

Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—GPS Mapping

MANUFACTURER/DISTRIBUTOR	Carlson Software	Carlson Software	The CEDRA Corporation	Condor Earth Technologies Inc.	MicroSurvey Software Inc.	Prosurv LLC
MANUFACTURER	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	Carlson SurvCE	Carlson Field	CEDRA DataEditor	PenMap 4.1	FieldGenius 2006	Prosurv cEZ GPS
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	\$1995-\$2995	\$2995	Contact vendor	\$2395	\$995	\$599.00
- Technical support	A	A	B	30 days free	B, \$99.50 per year	A, toll-free or E-mail
- Warranty (months)	N/A	N/A	N/A		N/A	1 year free upgrades
- Money-back guarantee (months)	N/A	N/A	N/A		1	1
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer, other (specify)	Win CE computers	[1]	N/A	Fujitsu ST3500	CE computers	Pocket PCs [7]
- Operating Systems:						
- Windows systems (specify)	CE	Windows 98 or higher	98/2000/NT/XP	98/2000/NT	CE	[8]
- Other (specify)						
- Minimum RAM required (if optional/adjustable on above device)	64	64 MB	500 MB		32 MB	64 MB RAM
- Minimum screen resolution required (if optional/adjustable)	N/A	N/A	1024, 768		N/A	240 x 320
- Color display support?	Yes	Yes	Yes	Yes	Yes, optional	Yes
- Laser rangefinders? If yes, # of brands.	N	N	N/A	5	2	0
- Optical total stations? (If yes, # of brands.)	Yes, all major brands	Yes, all major brands	N/A	10	All common	8
- GPS receivers (non-RTK)? If yes, # of brands.	Yes, all major brands	Yes, all major brands	N/A	3	All common	0
- GPS receivers (RTK)? If yes, # of brands.	Yes, all major brands	Yes, all major brands	N/A	3	All common	2 [9]
- Other instruments? Describe.				[2]		3 digital levels
SETUP						
- Set Instrument Parameters?	Yes	Yes	Yes	Yes	Yes	Yes
- Edit Point Description quick-pick lists?	Yes	Yes	Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	Yes	Yes	Yes	Yes	Yes	Yes
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coords with point number and description	Unlimited	Unlimited	Yes	Unlimited	Unlimited	15,000 per job
- Stores Multiple Jobs? If yes, # of jobs? (N/#/Unlimited)	Yes	Unlimited	Yes	Yes	Unlimited	Unlimited
- Can the software attach external data files to the job file (types)? (e.g., comma delimited, geoid models, DTMs, DXF background maps)	Yes	Yes	Yes	Yes	[5]	Yes
- Enter or Capture Point Code (not number)?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric Identification of Points?	Yes	Yes	Yes	Yes	Yes	Yes
- Enter base/rover height of bottom of antenna? (Y/N)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter base/rover height of antenna phase center? (Y/N)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine WGS84? Lat/Long/Height	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine geodetic coordinate (Lat/Long?Height)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine local/published grid coordinates? (XYZ, NEE)	Yes	Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Coordinate Entry?	Yes	Yes	Yes	Yes	Yes	Yes
- Capture Descriptive Notes?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate / Descriptor searching?	Yes	Yes	Yes	Yes	Yes	Yes
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Adjustable data value limits?	Yes	Yes	Yes	Yes	Yes	Yes
- Time Stamping of Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Automated plot codes? (linework)	Yes	Yes	Yes	Yes	Yes	Yes
DATA AUTOMATION						
- Point Number + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Auto-Capture point based on time lapse?	Yes	Yes	Yes	Yes	Yes	Yes [10]
- Auto-Capture point based on distance lapse?	Yes	Yes	Yes	Yes	Yes	Yes [10]
CALCULATIONS						
- Calculate coordinates?	Yes	Yes	Yes	Yes	Yes	Yes [11]
- Inverse?	Yes	Yes	Yes	Yes	Yes	Yes [12]
- Calculate intersections? (bearing/bearing, distance/distance, etc.)	Yes	Yes	Yes	Yes	Yes	Yes [13]
- Traverse computations?	Yes	Yes	Yes	Yes	Yes	Yes [14]
- Standard 2 and 3 point resection?	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate distance and azimuth between points?	Yes	Yes	Yes	Yes	Yes	Yes [15]
- Calculate area?	Yes	Yes	Yes	Yes	Yes	Yes [16]
NAVIGATION & STAKEOUT						
- Graphical navigation/stakeout?	Yes	Yes	Yes	Yes	Yes	Yes, with cut/fill
- Navigate to a stored point (waypoint)?	Yes	Yes	Yes	Yes	Yes	Yes, with cut/fill
- Navigate to a manually-entered point?	Yes	Yes	Yes	Yes	Yes	Yes, with cut/fill
- Stake to a line/arc?	Yes	Yes	Yes	Yes	Yes	Yes [17]
- Stake to a point offset from a point, line or arc?	Yes	Yes	Yes	Yes	Yes	Yes [18]
- Stake to a DTM/TIN?	Yes	Yes	Yes	Yes	Yes	No
- Capture lines and areas (as a single unique feature)	Yes	Yes	Yes	Yes	Yes	No
- Send data direct to a printer?	Yes	Yes	Yes	No	No	No
INTERACTIVE MAP						
- View data point map?	Yes	Yes	Yes	Yes	Yes	Yes
- Pan/zoom map?	Yes	Yes	Yes	Yes	Yes	Yes
- View point codes/names?	Yes	Yes	Yes	Yes	Yes	Yes
- Graphically select point for stakeout, COGO, editing?	Yes	Yes	Yes	Yes	Yes	Yes
- View background map? (DXF, etc.)	Yes	Yes, DWG	Yes	Yes	Yes	Yes [19]
- Support user-selected display of multiple layers?	Yes	Yes	Yes	Yes	Yes	No
- Layer visibility thresholds based on zoom?	Yes	Yes	Yes	Yes	No	No
- Native (preferred) file type (.DXF, .DWG, etc.)	DXF, SHP	DWG	Yes	[3]	DXF, DBF	
- Import/Export DWG file? (Y/N)	No	Yes	Yes	Yes	N	No
- Import/Export DXF file? (Y/N)	Yes	Yes	Yes	Yes	Yes/yes	No
- Import/Export ASCII file? (Y/N)	Yes	Yes	Yes	Yes	Yes/yes	Yes
OPTIONAL MODULES & SPECIAL FEATURES						
- Graphical satellite display?	Yes	Yes	N/A		Yes	Yes
- Other modules & special features:						[20]
- Describe				[4]	[6]	[21]

N/A=Not Applicable
Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—GPS Mapping

MANUFACTURER/DISTRIBUTOR	Prosurv LLC	Prosurv LLC	Prosurv LLC	Prosurv LLC	SMI	SMI
MANUFACTURER	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	Pocket WorldCon	Pocket Quads VGA	Pocket Quads.NET [44]	Prosurv Imaging	Data Collection with GPS/Robotic	Construction with GPS/Robotic
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	\$79.00	\$199 [44]	\$199	\$199 [56]	\$1700	\$2600
- Technical support	A, toll-free or E-mail	A, toll-free or E-mail	A, toll-free or E-mail	A, toll-free or E-mail	B, C	B, C
- Warranty (months)	1 year free upgrades	1 year free upgrades	1 year free upgrades	1 year free upgrades	12	12
- Money-back guarantee (months)	1	1	1	1	1	1
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer, other (specify)	Pocket PCs	[24]	Pocket PCs [7]	PC or laptop	[70]	[70]
- Operating Systems:						
- Windows systems (specify)	[8]	[25]	[8]	Win 98/Me/2000/XP	[72]	[72]
- Other (specify)						
- Minimum RAM required (if optional/adjustable on above device)	32 MB	64 MB RAM	64 MB RAM	[57]	16 MB	16 MB
- Minimum screen resolution required (if optional/adjustable)	240 x 320	[26]	240 x 320	[58]		
- Color display support?	Yes	Yes, hi-resolution	Yes	Yes	Yes	Yes
- Laser rangefinders? If yes, # of brands.			N/A	N/A	Yes, 4	Yes, 4
- Optical total stations? (If yes, # of brands.)			N/A	N/A	Yes, 11	Yes, 11
- GPS receivers (non-RTK)? If yes, # of brands.		[27]	[45]	[45]	Yes, GGA	Yes, GGA
- GPS receivers (RTK)? If yes, # of brands.					Yes, 5	Yes, 5
- Other instruments? Describe.					3 digital levels	3 digital levels
SETUP						
- Set Instrument Parameters?		Yes [28]	Yes [46]	Yes	Yes	Yes
- Edit Point Description quick-pick lists?		Yes [29]	Yes [29]	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?			N/A			
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coords with point number and description		Unlimited	[47]	Unlimited	9600 per 1 MB	9600 per 1 MB
- Stores Multiple Jobs? If yes, # of jobs? (N/#/Unlimited)		Unlimited	Unlimited	Unlimited	Yes, unlimited	Yes, unlimited
- Can the software attach external data files to the job file (types)? (e.g., comma delimited, geoid models, DTMs, DXF background maps)		Yes [30]	[48]	[59]	Yes, geoid	Yes, geoid
- Enter or Capture Point Code (not number)?		Yes	Yes		Yes	Yes
- Alphanumeric Identification of Points?		Yes	Yes		No	No
- Enter base/rover height of bottom of antenna? (Y/N)		N/A	No		Yes	Yes
- Enter base/rover height of antenna phase center? (Y/N)		N/A	No		Yes	Yes
- Enter and determine WGS84? Lat/Long/Height		Yes	Yes	Yes	Yes	Yes
- Enter and determine geodetic coordinate? (Lat/Long/Height)		Yes	Yes	Yes	Yes	Yes
- Enter and determine local/published grid coordinates? (XYZ, NEE)		Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Coordinate Entry?		Yes	Yes	Yes	Yes	Yes
- Capture Descriptive Notes?		Yes [31]	Yes [31]	Yes [60]	Yes	Yes
- Coordinate Editing?		No	No	No	Yes	Yes
- Coordinate / Descriptor searching?		Yes	Yes	Yes	Yes	Yes
- Erase and/or Edit Data?		No	No	Yes	Yes	Yes
- Adjustable data value limits?		No	N/A	N/A	Yes	Yes
- Time Stamping of Data?		Yes [32]	Yes [49]	Yes	Yes	Yes
- Automated plot codes? (linework)		No		N/A	Yes	Yes
DATA AUTOMATION						
- Point Number + 1?		Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?			No	N/A	No	No
- Auto-Capture point based on time lapse?		Yes	Yes	Yes	No	No
- Auto-Capture point based on distance lapse?		Yes	Yes	Yes	Yes	Yes
CALCULATIONS						
- Calculate coordinates?		No [33]	No [33]	Yes [61]	Yes	Yes
- Inverse?		Yes	Yes	Yes	Yes	Yes
- Calculate intersections? (bearing/bearing, distance/distance, etc.)		No [33]	No [33]	Yes [62]	Yes	Yes
- Traverse computations?		No	N/A		Yes	Yes
- Standard 2 and 3 point resection?		No	N/A		Yes	Yes
- Calculate distance and azimuth between points?		Yes [34]		Yes	Yes	Yes
- Calculate area?			No [33]	Yes	Yes	Yes
NAVIGATION & STAKEOUT						
- Graphical navigation/stakeout?		Yes [35]	Yes [50]	Yes	Yes	Yes
- Navigate to a stored point (waypoint)?		Yes [36]	Yes	Yes	Yes	Yes
- Navigate to a manually-entered point?		Yes [37]	Yes	Yes	Yes	Yes
- Stake to a line/arc?		Yes	Yes (line)	No	Yes	Yes
- Stake to a point offset from a point, line or arc?		No	No	No	Yes	Yes
- Stake to a DTM/TIN?		No	No	No	No	No
- Capture lines and areas (as a single unique feature)		No	No	No	Yes	Yes
- Send data direct to a printer?		No	No	[63]	Yes	Yes
INTERACTIVE MAP						
- View data point map?		Yes [38]	Yes	Yes	Yes	Yes
- Pan/zoom map?		Yes [39]	Yes [51]	Yes [64]	No	No
- View point codes/names?		Yes	Yes	Yes	Pt #s	Pt #s
- Graphically select point for stakeout, COGO, editing?		Yes	Yes		No	No
- View background map? (DXF, etc.)		Yes [40]	Yes [52]	Yes [65]	No	No
- Support user-selected display of multiple layers?		No	Yes	Yes [66]	No	No
- Layer visibility thresholds based on zoom?		No	No	No	No	No
- Native (preferred) file type (.DXF, .DWG, etc.)		[41]	[41]	[67]	SMI	SMI
- Import/Export DWG file? (Y/N)			N/A	No	No	No
- Import/Export DXF file? (Y/N)			N/A	No	Yes	Yes
- Import/Export ASCII file? (Y/N)		Yes	Yes	Yes	Yes	Yes
OPTIONAL MODULES & SPECIAL FEATURES						
- Graphical satellite display?		Yes	Yes	No	Yes	Yes
- Other modules & special features:	[22]	[42]	[53]	[68]	[71]	[71]
- Describe	[23]	[43]	[54][55]	[69]		

N/A=Not Applicable
Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—GPS Mapping

MANUFACTURER/DISTRIBUTOR	Sokkia	Sokkia	Topcon	Topcon	Topcon	Topcon
MANUFACTURER	Sokkia	Sokkia	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	SDR Level 5	IMAP	TopSURV Complete	TopSURV GPS+	TopSURV GIS	TopSURV Pro GPS+ w/roading
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	Contact Sokkia A, 800/255-3913	Contact Sokkia A, 800/255-3913	Contact Topcon dealer 866/4-TOPCON	Contact Topcon dealer 866/4-TOPCON	Contact Topcon dealer 866/4-TOPCON	Contact Topcon dealer 866/4-TOPCON
- Technical support	A, 800/255-3913	A, 800/255-3913	866/4-TOPCON	866/4-TOPCON	866/4-TOPCON	866/4-TOPCON
- Warranty (months)	12	12	12	12	12	12
- Money-back guarantee (months)	1	1	N/A	N/A	N/A	N/A
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer, other (specify)	[73]	[77]	FC 100/FC 2000	FC 100/FC 2000	FC 100/FC 2000/GMS-2	FC 100/FC 2000
- Operating Systems:						
- Windows systems (specify)	[74]	[74]	CE.NET	CE.NET	CE.NET	CE.NET
- Other (specify)						
- Minimum RAM required (if optional/adjustable on above device)	16 MB	8 MB	64 MB	64 MB	64 MB	64 MB
- Minimum screen resolution required (if optional/adjustable)	240 x 320	240 x 320	240 x 320	240 x 320	240 x 320	240 x 320
- Color display support?	Yes	Yes	Yes	Yes	Yes	Yes
- Laser rangefinders? If yes, # of brands.	Yes, 2	Yes, 6	Yes	Yes	Yes	Yes
- Optical total stations? (If yes, # of brands.)	Yes, 7	No	Yes	No	Yes	No
- GPS receivers (non-RTK)? If yes, # of brands.	Yes, 2	Yes, 13 DGPS	Yes	Yes	Yes	Yes
- GPS receivers (RTK)? If yes, # of brands.	Yes, 2		Yes	Yes	Yes	Yes
- Other instruments? Describe.			MMGPS+	MMGPS+	GMS-2 [80]	MMGPS+
SETUP						
- Set Instrument Parameters?	Yes	Yes	Yes	Yes	Yes	Yes
- Edit Point Description quick-pick lists?	Yes	Yes	Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?	No	Yes	Yes	Yes	Yes	No
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coords with point number and description	500,000+ [75]	Unlimited w/ CF card.	Unlimited	Unlimited	Unlimited	Unlimited
- Stores Multiple Jobs? If yes, # of jobs? (N/#/Unlimited)	Yes	Yes	Unlimited	Unlimited	Unlimited	Unlimited
- Can the software attach external data files to the job file (types)? (e.g., comma delimited, geoid models, DTMs, DXF background maps)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter or Capture Point Code (not number)?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric Identification of Points?	Yes	Yes	Yes	Yes	Yes	Yes
- Enter base/rover height of bottom of antenna? (Y/N)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter base/rover height of antenna phase center? (Y/N)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine WGS84? Lat/Long/Height	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine geodetic coordinate (Lat/Long/Height)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine local/published grid coordinates? (XYZ, NEE)	Yes	Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Coordinate Entry?	Yes	Yes	Yes	Yes	Yes	Yes
- Capture Descriptive Notes?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate / Descriptor searching?	Yes	Yes	Yes	Yes	Yes	Yes
- Erase and/or Edit Data?	Via desktop software	Yes	Yes	Yes	Yes	Yes
- Adjustable data value limits?	No	Yes	Yes	Yes	Yes	Yes
- Time Stamping of Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Automated plot codes? (linework)	Yes	Yes	Yes	Yes	Yes	No
DATA AUTOMATION						
- Point Number + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Auto-Capture point based on time lapse?	Yes	Yes, interval	Yes	Yes	Yes	Yes
- Auto-Capture point based on distance lapse?	Yes	Yes, interval	Yes	Yes	Yes	Yes
CALCULATIONS						
- Calculate coordinates?	Yes	Yes	Yes	Yes	Yes	Yes
- Inverse?	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate intersections? (bearing/bearing, distance/distance, etc.)	Yes	No	Yes	Yes	Yes	Yes
- Traverse computations?	Yes	No	Yes	Yes	Yes	Yes
- Standard 2 and 3 point resection?	Yes	No	Yes	Yes	Yes	Yes
- Calculate distance and azimuth between points?	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate area?	Yes	Yes	Yes	Yes	Yes	Yes
NAVIGATION & STAKEOUT						
- Graphical navigation/stakeout?	Yes	Yes	Yes	Yes	Yes	Yes
- Navigate to a stored point (waypoint)?	Yes	Yes	Yes	Yes	Yes	Yes
- Navigate to a manually-entered point?	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a line/arc?	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a point offset from a point, line or arc?	Yes	Yes	Yes	Yes	Yes	Yes
- Stake to a DTM/TIN?	Yes	Yes	Yes	Yes	Yes	Yes
- Capture lines and areas (as a single unique feature)	No	Yes	Yes	Yes	Yes	Yes
- Send data direct to a printer?	Yes	Yes, desktop version only	No	No	No	No
INTERACTIVE MAP						
- View data point map?	Yes	Yes	Yes	Yes	Yes	Yes
- Pan/zoom map?	Yes	Yes	Yes	Yes	Yes	Yes
- View point codes/names?	Yes	Yes	Yes	Yes	Yes	Yes
- Graphically select point for stakeout, COGO, editing?	No	Yes	Yes	Yes	Yes	Yes
- View background map? (DXF, etc.)	No	Yes	[78]	[78]	[78]	[78]
- Support user-selected display of multiple layers?	No	Yes	Yes	Yes	Yes	Yes
- Layer visibility thresholds based on zoom?	No	Yes	No	Yes	no	No
- Native (preferred) file type (.DXF, .DWG, etc.)	SDR Format	UDF	.t1sv	.t1sv	.t1sv	.t1sv
- Import/Export DWG file? (Y/N)	Via desktop software	No	Yes	Yes	Yes	Yes
- Import/Export DXF file? (Y/N)	Via desktop software	Yes	Yes	Yes	Yes	Yes
- Import/Export ASCII file? (Y/N)	Yes	Yes	Yes	Yes	Yes	Yes
OPTIONAL MODULES & SPECIAL FEATURES						
- Graphical satellite display?	Yes	Yes	Yes	Yes	Yes	Yes
- Other modules & special features:	[76]		MMGPS+ [79]	MMGPS+ [79]	[81]	MMGPS+ [79]
- Describe						

N/A=Not Applicable
Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey—GPS Mapping

MANUFACTURER/DISTRIBUTOR	Traverse PC	Trimble	Tripod Data Systems	XYZworks	XYZworks	XYZworks
MANUFACTURER	Same	Same	Same	Same	Same	Same
PRODUCT NAME OR MODEL NUMBER	THH Professional	TerraSync software	SOLO Field	Fieldworks	Fieldworks with Fieldbook	Fieldworks with HP IPAQ 4350
SUGGESTED RETAIL PRICE (MSRP) (IN U.S. DOLLARS)	\$899	Contact Trimble reseller	\$1000	\$595	\$1995	\$1099
- Technical support	B, C [97]	B	A	A, 30 days	A, 30 days	A, 30 days
- Warranty (months)	3	3	3	12	24	12
- Money-back guarantee (months)	1	0	1	1	1	1
PLATFORM & INSTRUMENTS						
- Name/model of handheld computer, other (specify)	[98]	[92]	[82]	All Windows CE	XYZworks Fieldbook	4350 (works with any IPAQ)
- Operating Systems:						
- Windows systems (specify)	N/A	[93]	[83]	Windows CE	Windows CE	Windows CE
- Other (specify)	MS-DOS			PocketPC		PocketCAD
- Minimum RAM required (if optional/adjustable on above device)	2 MB	32 MB	16 MB	8 MB	64 MB	64 MB
- Minimum screen resolution required (if optional/adjustable)	[99]	240 x 320	[84]	240 x 320	240 x 320	240 x 320
- Color display support?	No	Yes	Yes	Yes	Yes	Yes
- Laser rangefinders? If yes, # of brands.	1	Yes, 6	5	Yes, 3	Yes, 3	Yes, 3
- Optical total stations? (If yes, # of brands.)	All current non-robotic	No	2	Yes, 9	Yes, 9	Yes, 9
- GPS receivers (non-RTK)? If yes, # of brands.	No	Yes, Trimble	Unlimited	Yes, 6	Yes, 6	Yes, 6
- GPS receivers (RTK)? If yes, # of brands.	[100]	Yes, Trimble	7	Yes, 5	Yes, 4	Yes, 4
- Other instruments? Describe.		External sensors	[85]	MDL scanning laser	MDL scanning laser	MDL scanning laser
SETUP						
- Set Instrument Parameters?	No	Yes	Yes [86]	Yes	Yes	Yes
- Edit Point Description quick-pick lists?	Yes	Yes	Yes	Yes	Yes	Yes
- Set survey style types defining various instrument, measurement and point description parameters to enable easy switching from one process or instrument to another?		Yes	Yes	Yes [49]	Yes [49]	Yes [49]
DATA STORAGE AND COLLECTION						
- Maximum number of point measurements that can be stored as raw or coords with point number and description	Unlimited [101]	Unlimited	[87]	250,000	500,000	500,000
- Stores Multiple Jobs? If yes, # of jobs? (N/#/Unlimited)	Unlimited [101]	Yes, unlimited	Unlimited	Yes, unlimited	Yes, unlimited	Yes, unlimited
- Can the software attach external data files to the job file (types)? (e.g., comma delimited, geoid models, DTMs, DXF background maps)	No	Yes [94]	Yes [88]	Yes, with PocketCAD	Yes, with PocketCAD	Yes, w/ PocketCAD
- Enter or Capture Point Code (not number)?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric Identification of Points?	Yes	Yes	Yes	No	No	No
- Enter base/rover height of bottom of antenna? (Y/N)	N/A	Yes	Yes	Yes/yes	Yes/yes	Yes/yes
- Enter base/rover height of antenna phase center? (Y/N)	N/A	Yes	Yes	Yes/yes	Yes/yes	Yes/yes
- Enter and determine WGS84? Lat/Long/Height	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine geodetic coordinate? (Lat/Long/Height)	Yes	Yes	Yes	Yes	Yes	Yes
- Enter and determine local/published grid coordinates? (XYZ, NEE)	Yes	Yes	Yes	Yes	Yes	Yes
MEASUREMENT SEQUENCES & ATTRIBUTE COLLECTION						
- Manual Coordinate Entry?	Yes	Yes	Yes	Yes	Yes	Yes
- Capture Descriptive Notes?	Yes	Yes	Yes	Yes	Yes	Yes
- Coordinate Editing?	Yes	No	Yes	Yes [50]	Yes [50]	Yes [50]
- Coordinate / Descriptor searching?	Yes	Yes	Yes, descriptor	No	No	No
- Erase and/or Edit Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Adjustable data value limits?	Yes	Yes	Yes	Yes	Yes	Yes
- Time Stamping of Data?	Yes	Yes	Yes	Yes	Yes	Yes
- Automated plot codes? (linework)	Yes	Yes	Yes	Yes	Yes	Yes
DATA AUTOMATION						
- Point Number + 1?	Yes	Yes	Yes	Yes	Yes	Yes
- Alphanumeric + 1?	Yes	Yes	No	No	No	No
- Auto-Capture point based on time lapse?	Yes	Yes	Yes	Yes	Yes	Yes
- Auto-Capture point based on distance lapse?	Yes	Yes	Yes	Yes	No	No
CALCULATIONS						
- Calculate coordinates?	Yes	No	Yes	Yes [50]	Yes [50]	Yes [50]
- Inverse?	Yes	No	Yes	Yes [51]	Yes [52]	Yes [52]
- Calculate intersections? (bearing/bearing, distance/ distance, etc.)	Yes	Yes	Yes	Yes	Yes	Yes
- Traverse computations?	Yes	No	Yes	Yes [53]	Yes [53]	Yes [53]
- Standard 2 and 3 point resection?	Yes	No	Yes, 2-point	Yes [54]	Yes [54]	Yes [54]
- Calculate distance and azimuth between points?	Yes	Yes	Yes	Yes	Yes	Yes
- Calculate area?	Yes	Yes	Yes	Yes	Yes	Yes
NAVIGATION & STAKEOUT						
- Graphical navigation/stakeout?	Yes	Yes	Yes	Yes, w/ PocketCAD	Yes, w/ PocketCAD	Yes, w/ PocketCAD
- Navigate to a stored point (waypoint)?	Yes	Yes	Yes	Yes, via stakeout	Yes, via stakeout	Yes, via stakeout
- Navigate to a manually-entered point?	Yes	Yes	Yes	Yes, via stakeout	Yes, via stakeout	Yes, via stakeout
- Stake to a line/arc?	Yes	No	Yes	Yes	Yes	Yes
- Stake to a point offset from a point, line or arc?	Yes	No	No	Yes	Yes	Yes
- Stake to a DTM/TIN?	No	No	No	No	No	No
- Capture lines and areas (as a single unique feature)	Yes	Yes	Yes	No	Yes	No
- Send data direct to a printer?	Yes	No	No	No	No	No
INTERACTIVE MAP						
- View data point map?	Yes	Yes	Yes	Yes	Yes	Yes
- Pan/zoom map?	Yes	Yes	Yes	Yes	Yes, w/ PocketCAD	Yes, w/ PocketCAD
- View point codes/names?	Yes	Yes	Yes	Yes	Yes, w/ PocketCAD	Yes, w/ PocketCAD
- Graphically select point for stakeout, COGO, editing?	No	Yes	Yes	Yes, w/ PocketCAD	Yes, w/ PocketCAD	Yes, w/ PocketCAD
- View background map? (DXF, etc.)	No	[95]	Yes	Yes, w/ PocketCAD	Yes, w/ PocketCAD	Yes, w/ PocketCAD
- Support user-selected display of multiple layers?	Yes	No	Yes	Yes, w/ PocketCAD	Yes, w/ PocketCAD	Yes, w/ PocketCAD
- Layer visibility thresholds based on zoom?	No	No	Yes	Yes, w/ PocketCAD	Yes, w/ PocketCAD	Yes, w/ PocketCAD
- Native (preferred) file type (.DXF, .DWG, etc.)	.TRH	SSF	UDF and SHP	DWG or DGN	DWG or DGN	DWG or DGN
- Import/Export DWG file? (Y/N)	No/no	No/no	No	Yes/yes w/ PocketCAD	Yes/yes w/ PocketCAD	Yes/yes w/ PocketCAD
- Import/Export DXF file? (Y/N)	Yes/yes	Yes/yes	Yes	Yes/yes w/ PocketCAD	Yes/yes w/ PocketCAD	Yes/yes w/ PocketCAD
- Import/Export ASCII file? (Y/N)	Yes/yes	Yes/yes	Yes	Yes/yes	Yes/yes	Yes/yes
OPTIONAL MODULES & SPECIAL FEATURES						
- Graphical satellite display?	No	Yes	Yes	Yes	Yes	Yes
- Other modules & special features:	Multi-layer attributing	Mission planning	[89]	[55][56]	[55][56]	
- Describe		[96]	[90][91]			

N/A=Not Applicable

Numbers in brackets refer to notes (see pages 58 and 59).

2005 Data Collector/Controller Software Survey Notes

Technical support options:

A Unlimited free technical support.

B Technical support available by a subscription.

C Technical support available on a per-call basis.

Check out *POB's* annual hardware survey online at www.pobonline.com. Click on Product Surveys.

POB does not assume responsibility for any errors or omissions that may be contained within the survey.

2005 OPTICAL DATA COLLECTION SOFTWARE NOTES

1. Panasonic Toughbook or similar.
2. Measured Building Survey.
3. All known manufacturers.
4. Handheld laser meter, DISTOplus.
5. TachyCAD is a solution for measured building survey: surveying the site directly with a total station. Additional measurements may be captured with a handheld laser meter, a tape or a folding rule at any time.
6. Raw file editing, code free linework, free desktop version.
7. Pricing includes MicroSurvey FieldGenius 2006 (includes Basic, Total Station, Robotic, Roading and GPS support).
8. HP iPAQ, Dell Axim, others.
9. Windows Mobile 2003 or 2003 Second Edition.
10. cEZ 2.0 available Jan. 2006.
11. 32 functions, with 6+ command-line functions.
12. I.e., 7*9+90:10 in radial stakeout.
13. Using 3D stake to line.
14. In command line or by tapping.
15. Digital level or manual entry.
16. Manual entry of horizontal & vertical geometry.
17. Installation guide provided in English or Spanish.
18. Stores shots in less than one second (raw and cor data). Robust data: all data is immediately committed to the database (raw/coor/etc). Prosurv cEZ jobs retain all data even if a soft-reset is performed while in a job. Automatic text backup (every shot) of raw data can restore raw (and cor) data in the rare case of a corrupted CE job file. Use Prosurv PC to restore or E-mail the file to Prosurv LLC for free restoration. RTK GPS support includes satellite data and 35 point least squares 3D calibration.
19. Allegro CX, Jett CE, other Windows CE & Pocket PC devices.
20. CE, .Net, Pocket PC (all versions).
21. Manual Entry Mode included.
22. Real-time side shot, real-time stake.
23. iPaq, Jett Ce, Allegro.
24. Pocket PC, CE.Net.
25. No, 1st quarter 2006.
26. GIS theme import/export.
27. Price w/Jett - \$1350.
28. Limited by available memory.
29. Allegro/JETT ce/Pocket PC PDA's/DAP 5320.
30. Only limited by memory size.
31. With roading.
32. DXF, DWG, Mr Sid, Geotiff, and georeferenced .jpeg and bitmap formats.
33. User configurable menus and displays; upgradeable.
34. Digital imaging of all points collected by internal coaxial digital camera.
35. Provides integrated surveying solution between conventional optical and robotic available in English, German, French, Spanish, Italian, Swedish, Finnish, Norwegian, Danish, Turkish, Russian and Japanese (simplified).
36. Trimble TSCe or Trimble TCU.
37. >100k raw / >20k coord.
38. Trimble Recon and Trimble TSC2.
39. Windows Mobile for Pocket PC.
40. Bluetooth capable, integrated wireless LAN 802.11b and internal 2.4 GHz radio (optional).
41. Trimble ACU, Trimble TSCe and Trimble TCU.
42. Conventional, servo and robotic total station.
43. Cellular modem for Internet/E-mail.
44. ASCII DXF and ESRI shape files.
45. Eleven languages: English, French, German, Spanish, Portuguese, Swedish, Italian, Dutch, Chinese, Korean and Japanese.
46. Generates contours, VRS capable, grade ad thickness checking, laser level mode, working with tolerance.
47. Six languages: Chinese (simplified), French, German, Italian, Russian, Spanish.

48. HP 48GX calculator is no longer available.
49. Optional leveling module required.
50. Survey Pro Robotics or Survey Pro Max is needed to get the full benefit of the robotic capabilities.
51. Instrument and target parameters can be set and stored providing different capabilities and survey styles.
52. 100K raw, 20K coord. 10,000 to 20,000 coordinates per job is possible, depending on allocated RAM, linework settings, other software concurrently running, etc. Storing raw data affects the amount of points that can be stored on the Flash Card, but has a miniscule effect on how large a job file can grow and still be loaded (opened).
53. Ability to capture point name, point description and feature attributes.
54. Survey Pro Max is needed to use GPS receivers.
55. iPAQ 3600, 3700, 3800 and other brands/models with StrongArm. Any device with the proper memory configuration and Windows Mobile for Pocket PC OS.
56. Pocket PC 2000, 2002.
57. Any Windows CE platform.
58. User definable descriptor files.
59. Also rotate, translate and scale.
60. Traverse, inverse, B-B, B-D-D, curve computations.
61. Free station with precision display.
62. Can transfer in TDS, SMI, SDR and Maptech formats.
63. Integrates level notes with your total station and gps.
64. With PocketCAD.
65. Complete manual online within the program.
66. The addition of PocketCAd allows users take their DWG or DGN file to the field and interactively work in collect, cogo and stakeout with full screen graphics. Demo available at www.xyzworks.com.
67. Includes 2 pt free station with precision display.
68. Complete manual within program accessed with the Help key.
69. Works with any iPAQ.
70. Closure with angle balance and compass adjustment.
71. Free station with precision display.
72. Can transfer in TDS, SMI, SDR and Maptech formats.
73. Intersections, vertical curves, complete 3D radial stakeout from horizontal/vertical alignments.
74. SiteStake includes all features of Student Cogo plus the ability to interface with total stations, import/export ASCII and slope stake.
75. Includes all features of SiteStake plus ability to store raw data, use typical sections for stakeout and record stakeout activity to a gradesheet.
76. Thirty days of technical support included with purchase.
77. Any MS-DOS based data collector (HP200, Husky MP2500, etc.).
78. 8 rows x 40 characters.
79. Dependent on amount of memory.
80. Any that produce NEMA string.

2005 GPS DATA COLLECTION/MAPPING SOFTWARE NOTES

1. Panasonic Toughbook or similar.
2. Digital cameras, barcode readers, depth sounders.
3. Shapefiles, DXF, DWG.
4. Real-time data collection. No post-processing required. No modules necessary.
5. DTM, DXF, Geoid Models.
6. Pricing includes MicroSurvey FieldGenius 2006 (includes Basic, Total Station, Robotic, Roading and GPS support).
7. HP iPAQ, Dell Axim, others.
8. Windows Mobile 2003 or 2003 Second Edition.
9. cEZ GPS available 01/2006.
10. And/or vertical difference.
11. 32+ COGO functions.
12. Command-line or 200 point scrolling report (+ export as text).
13. 5 intersections including dual offset and known offset.
14. Bearing/distance or angle/distance with auto-convert units from chains.
15. Automatic Bg and Az display.
16. Polygon & curve areas + predetermined sliding line and hinged.
17. 3D stake to line/arc.
18. 3D station-based cut/fill.
19. Geo-referenced maps.
20. 35 Point 3D least squares calibration.
21. Complete total station, digital level, and RTK GPS data collection within the same job file. COGO functions include least squares best-fit line/curve, building foundation creation, baselines with horizontal & vertical geometry, 2000 sets (point lists) per job, 3 compass rule adjustments, recompute raw data, spiral CL with offsets, divide section into aliquot parts, translate elevations, automated cross sectioning, feature codes & attributes, scientific codes, close horizon traverse, all NAD83/UTM zones, 7 curve routines, area/unit conversions.

22. Lat/long, UTM and SPC conversion utility.
23. With built-in NADCON. Automatically converts between lat/long and state plane or UTM coordinates. Converts between zones automatically. Converts units automatically. Automatic East/West UTM zone detection. South UTM zones supported.
24. Pocket PCs with VGA capability (Dell Axim X50v, others).
25. Windows Mobile 2003 Second Edition.
26. Displays maps at 480 x 640 hi-resolution on 240 x 320 screens.
27. Any NMEA GPS receiver, Bluetooth or cable.
28. Automatic baud/com settings.
29. User-defined (text file) drop-down list.
30. Topo maps or any image processed with Prosurv Imaging.
31. Tap to create points on-screen (ie at section corners) with annotations. Captures GPS location, tapped cor and text.
32. Automatic when recording points by time or distance.
33. Use Prosurv Imaging, then import the points.
34. Tap screen to view lat/long and SPC.
35. Movement or north-based arrow.
36. Tap the screen at a section corner to create the point, then tap to stake it out.
37. Hand-enter lat/long or SPC.
38. Points automatically displayed on image.
39. Full pan/zoom capabilities + view in 3 different scales (change scales OTF).
40. Topo maps or other georeferenced images.
41. PNG images processed using Prosurv Imaging.
42. This VGA version displays 4 times the map area on the same 240 x 320 Pocket PC screen in hi-resolution.
43. Displays Topo Maps at 480x640 pixel Hi-Resolution on a 240x320 screen. Pocket Quads VGA is a special version of Pocket Quads.NET, taking full advantage of the latest in Pocket PC technology. Requires Pocket PCs running Windows Mobile 2003SE with VGA support. Call Prosurv to ask about special and custom editions that come with pre-processed topo maps.
44. Includes Prosurv Imaging.
45. Any GPS receiver with NMEA data output.
46. Baud rate/com port defaults.
47. Limited only by storage memory.
48. Live tracking of GPS displayed on 7.5' USGS topo maps (also 100k/250k maps).
49. Automatic when collecting GPS points by interval.
50. Navigate to/from a point by N/E, Az & Dist, or Bg & Dist.
51. Pan & zoom in/out + switch map scales OTF (24k/100k/250k).
52. USGS topo quad maps (7.5', 1:100,000 or 1:250,000).
53. Work in any NAD83 SPC or UTM zone; auto-center on GPS.
54. Price includes Prosurv Imaging PC Software, which is used to prepare maps for Pocket Quads.
55. Prosurv Pocket Quads.NET allows users to view and use USGS Topo Maps on a Pocket PC. The real-time live tracking capability switches Topo Maps automatically as users walk or drive. The compressed .png images allow you to store over 300 full size topo maps on a single 1GB CF/SD Card. Supports GNIS feature name and radial searches; it can find the closest NGS horizontal or vertical point to the user's current GPS position automatically, and displays the map once found. Supports NAD83/UTM and Albers projections. Prosurv Imaging can batch-process maps for use with Pocket Quads.NET. Also available for purchase are pre-processed maps from Prosurv LLC, including National Park and Custom editions.
56. \$199 with Pocket Quads or purchase Prosurv Imaging alone for \$119.
57. 256 MB RAM (512 MB recommended).
58. 800 x 600 (1280 x 1024 recommended).
59. USGS 7.5' (1:24k)/1:100k/1:250k scale topo maps.
60. Click anywhere on the image to place text. Save as new image.
61. Full command-line cogo including midpoint and prorater.
62. Plus dual-offset and known offset.
63. Print images at any scale. Auto-fit to page or print viewable area.
64. Full pan/zoom with mouse wheel zoom capability.
65. Main purpose of Prosurv Imaging is to display/use USGS topo maps or any georeferenced image.
66. Using sets of points.
67. Geo-referenced .tif/.jpg images.
68. Batch process dozens of USGS quads for use with Pocket Quads.NET.
69. New dual-image capability allows users to scan a supplemental image, such as a GLO plat, directly into Prosurv Imaging. Then, using the primary image (i.e., topo map), users can create a geo-reference file (.tfw World file) for the second image. Use the GLO plat on a Pocket PC for real-time GPS stakeout to section corners while viewing the image.
70. Allegro CX, Jett CE, other Windows & Pocket PC devices.
71. Real time side shot, real time stake.
72. CE, .Net, Pocket PC (all versions).
73. Allegro/JETT ce/Pocket PC PDA's/DAP CE 5320.

2005 Data Collector/Controller Software Survey Notes

74. Windows CE, Pocket PC.
75. Only limited by memory.
76. Calibration/mix total stations with RTK data. Roading with RTK.
77. Pocket PC PDAs/Allegro/JETT ce/DAP CE5320/Recon/Ranger.
78. DXF, DWG, Mr Sid, Geotiff and georeferenced .jpeg and bitmap formats.
79. Millimeter vertical accuracy RTK GPS+.
80. Digital imaging GIS handheld.
81. Digital image capture and offset calculation.
82. Any Windows/Windows CE/Windows Mobile.
83. Windows 9X/2000/NT/XP/CE/.NET.
84. 320 x 240 / 240 x 320.
85. Serial input for Attributes.
86. Select from list, baud rate, parity, stop bits, flow.
87. Dependent upon data collector storage capacity.
88. Basemaps, images, OLE objects.
89. Grid generation, geo-coding, topology, connectivity, hyperlinks, scripting, comm. module, redline.
90. Digitizing, multiple lines and areas simultaneously, continuously updated map display, GPS offsets.
91. Thematic display (basemaps and collected data), raw data logging, customizable toolbars and menus, business rules, link to 3rd party software, custom forms, measure tool, direct export from data collector (SHP, DXF, ASCII). No office software is required. Basemap formats supported are: SHP, DXF, DGN, MIF. Background image formats supported are: TIF, JPG, DOQ.
92. Supports a variety of hardware platforms with the specified operating systems
93. Microsoft Windows NT 4.0, 2000, XP (Home, Professional or Tablet PC editions) Windows Mobile software for Pocket PCs, Windows CE 4.x (CE.NET).
94. File attributes attached to features. These can be any type of file.
95. BMP, JPEG, MrSID, TIFF, vector data imported to SSF format.
96. The TerraSync software is a flexible GIS data collection and data maintenance tool that runs on Trimble's GeoExplorer series handhelds, the Trimble Ranger and Trimble Recon handhelds, or other Windows Mobile or CE.NET field computers.
97. Thirty days of technical support included with purchase.
98. Any MS-DOS based data collector (HP200, Husky MP2500, etc.).
99. 8 rows X 40 characters.
100. Any that produce NEMA string.
101. Dependent on amount of memory.

Participating Manufacturers

Carlson Software
www.carlsonsw.com

Soft-Art
www.pcsurvey.com

The CEDRA Corporation
www.cedra.com

Sokkia
www.sokkia.com

Condor Earth Technologies
www.condorearth.com

Topcon
www.topconpositioning.com

kubit GMBH
www.kubit.de

Traverse PC
www.traverse-pc.com

MicroSurvey Software Inc.
www.microsurvey.com

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Tripod Data Systems (TDS)
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www.ramss.com

XYZworks
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