

DATACOLLECTIONSYSTEMS







DataSure[™] Wireless Data Collection System

DataSure[™] — The Wireless Age Reaches the Factory Floor Actually, it reaches anywhere measurements are taken with electronic metrology tools. Shop floors, labs, quality assurance departments — they can all benefit from the unique capabilities of the new DataSure wireless data collection system from Starrett.

Cost-effective for bench-top or shop-wide data collection, DataSure systems can cover thousands of square feet while reliably protecting the integrity of the vital measurement data being collected.

DataSure gathers data from electronic measuring tools and delivers it to a PC. The data can then be analyzed by your statistical process control (SPC) application. With DataSure you can say goodbye to your manual and wired data collection systems.

What is DataSure Wireless Data Collection?

DataSure wireless data collection systems consist of three primary elements:

- Miniature radios (called End Nodes) that are attached to the data output ports of electronic tools
- A Gateway that connects to a PC
- Routers that extend the system's range and make the radio network more robust



DataSure works with a wide variety of calipers, indictors, micrometers and other ported electronic measuring tools from Starrett and other manufacturers.

DataSure



DataSure offers a comprehensive, robust wireless solution for the shopfloor that ensures the integrity of your data.

Why Go Wireless?

A wireless data collection system can significantly reduce human error in data recording. It removes wiring-related placement, installation, safety and cost issues. And it makes it easier for you to bring a precision measuring tool to the work, rather than having to bring work to the measuring tool.

A Comprehensive, Robust Solution There are other wireless data collection systems available, but only DataSure offers a complete, robust solution.

- DataSure maintains data integrity for accurate recording. The safe delivery of your data is ensured even in the hostile environment of electrically noisy shops, thanks to proprietary Starrett technology.
- DataSure sends a signal to assure you that data is received at the PC. Each measurement is time-stamped and logged into a database. DataSure sends a signal to assure you that data is received at the PC. There's no reason to wonder what happens to your data the system sends a confirmation signal when it is successfully received.

- If receipt is not acknowledged at the host SPC system, DataSure will store up to 10 readings and resend them until they are safely recorded. With DataSure, there's no need to worry about losing an entire shift's worth of collected data.
- DataSure adapts to all major brands of electronic measuring tools and a variety of software and tools so you don't have to invest in proprietary technology.
- ♦ It installs easily on a standard PC (requires Windows[®] XP Professional OS), and works with most SPC software packages, including Starrett Shop Floor Pro™, SPC Excel™ IV, Infinity QS[®], SPC Express, SPC+[®] II and Microsoft Excel[®], MeasureLink[®] and others.
- ◆ DataSure's versatility means it will work in almost any environment. Its highly configurable system architecture adapts to your work environment. Each DataSure system supports up to 256 tools and can be remotely accessed via your intranet connection.



DataSure

WIRELESS DATA COLLECTION

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DataSure at a Glance

An overview of DataSure Wireless Data Collection:

- DataSure users receive confirmation at the tool, indicating successful or unsuccessful data transmission.
- End Node radios can store up to 10 readings in the event that the main system is down or busy.
- The DataSure radio system works with Starrett, Mitutoyo, Sylvac, CDI tools, and other gages.
- One DataSure Gateway can handle up to 100 tools.
- Each radio's range is approximately 100 feet (30 meters). Adding Routers can increase range in 100 foot increments, up to 3000 feet.
- The multi-mode function allows one tool to be connected to a Gateway for simple installations, or to more than one multiplexer with many tools for complex shop environments.
- The DataSure system features a license-free 916MHz ISM band radio and a self-configuring and self-healing network.
- Data acquisition from tools can be initiated by operator or host control.
- Network, tool and end node battery status are all automatically monitored and recorded on screen and stored in the system's database.
- Rechargeable routers are ideal for mobile applications and physically large component data collection environments such as aircraft assembly hangars, large casting foundries, auto body stamping facilities and more.
- Easy-to-use software offers user-configurable names for tools and groups. Its user interface runs in the familiar Microsoft Internet Explorer browser.
- DataSure's flexibility means it can output data directly to the main application screen, your SPC software, a local or networked database, and/or TSV, CSV, XLS, and XML file formats.

What goes into a DataSure System? DataSure™ Wireless Systems start with environment. Sturdy of

superior engineering, state-of-the-art technology and rugged durability. Every component of the DataSure system is built to perform relⁱ in just about any environment. Sturdy construction and heavy duty materials help them withstand the rigors of everyday use under demanding conditions.

NEW



The **DataSure End Node** (above)plugs directly into most digital metrology tools. It sends measurement data and indicates with a green light when that data has been received by the Gateway.



Each **DataSure Router** (above)extends the system's range in increments of 30 meters. They ensure system robustness by providing alternate signal paths.



The **DataSure Gateway** (above)is the central point for data collection and tool management. The Gateway plugs into your PC through a USB port (shown above)or an RS232 port.

A DataSure Shopfloor

Here's an example of how a large shop could be networked with DataSure.

Individual tools at various locations in the shop collect data. The tools' End Nodes send the data to the nearest Router, which then passes the data to the Gateway, or directly to the Gateway (whichever is the shortest or most robust connection path). The Gateway sends a signal back through the same path to the End Node to confirm receipt of the data.







Address 🕘 http://localhost/sv

ADMINISTRATION

Primary Multiplexer

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DataSure

WIRELESS DATA COLLECTION

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Network Health: Good

Commands

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HOME TOOLS MULTIPLEXER LOGS APPLICATIONS

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interface and works well with many popular SPC applications.

WIRELESS DATA COLLECTION

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Locate

Above: DataSure Wireless Data Collection Manager Software provides a powerful, intuitive

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DataSure Wireless Data **Collection Manager** G Back • 0

e DataSure Wireless Data Collection anager runs within the Microsoft Internet plorer browser to connect and manage ur tools, network, data and third party C applications.

- Monitors your wireless network, tools, system status, end node battery voltages and tools measurements all from one screen
- Measurements can be initiated and viewed directly from the home page
- Data can be exported in many formats including: TSV, CSV, XML or XLS
- Data is stored on a local or network SQL database with programmable. scheduled backup
- Remote personnel can configure tools, export data and monitor activity via intranet with no additional software
- Each radio end node can be personalized with a descriptive name (right)
- System Requirements: DataSure runs with Windows ® XP Professional with Service Pack 2 (uses IIS and .NET framework components) (below)







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- Virtual multiplexers allow data to be directed from specific tools to multiple software applications



DATACOLLECTIONSYSTEMS DATASURE WIRELESS SYSTEMS



WIRELESS DATA COLLECTION

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DataSure Features and SpecificationsEnd NodesRouter



End Node Featur

- User feedback
- On-tool data storage
- Adapts to many tools
- Compact design
- Power
- CR2450 lithium or CR2477

Range

- ◆ 82 ft (25m)
- Size
- ◆ 2.18 ↔ 1.7 ↔ 0.7 ↔ 55.3mm x 43.2mm x 17.8mm

How to Buy DataSure

If you would like to buy a new DataSure installation, contact us to work with you to specify a system for your application. If you need End Nodes or Routers for an existing system, they must be made to match the Group Number that is on the label of your existing components.

The End Nodes listed here are currently available. Many additional End Nodes will become available as we create them for new applications. Please call us to discuss your requirements.





Router Features

- Range extender
- Transmits around interference
- Wall mount or mobile

Power

- ◆ AC power, NiMH or 24VAC hardwire
- Range
- ◆ 100 ft (30m)
- Size
- ◆ 7.0 ↔ 5.5 ↔ 2.5 ↔ 178mm x 140mm x 63.5mm

Gateways and Router

Gateways ar	ia Route	ſ
Catalog No.	EDP	Description
1500-1-UN	12051	Gateway for USB Port
1500-1-RN	12055	Gateway for RS232 Port
1500-2-N	12059	Router, 120/240 VAC
End Nodes		
1500-3-1N	12064	End Node for Starrett Opto, Cat. Nos. 782, 797, CDI, Sylvac

1500-3-1N	12064	End Node for Starrett Opto, Cat. Nos. 782, 797, CDI, Sylvac
1500-3-3N	12072	End Node for Starrett 3rd Generation, Cat. Nos. 721, 733, 2600
1500-3-4N	12076	End Node for Starrett 2700 Indicators
1500-3-5N	12080	End Node for Starrett Cat. Nos. 2000, 2001, 3752
1500-3-6N	12084	End Node for Mitutoyo 6-Pin
1500-3-7N	12088	End Node for Mitutoyo w/o absolute encoder
1500-3-9N	12185	End Node for Mitutoyo IP66 Micrometer
1500-3-10N	12186	End Node for Mitutoyo IP65 Micrometer
1500-3-11N	12187	End Node for Digimatic W/D-Sub 9-pin
Accessories		
PT62785-0		Mushroom head fastener kit to attach end node to tools
PT62742		Router mounting bracket

Gateway



Gateway Features

- ◆ USB (shown above)or RS232
- Sends data to application or database
- Multi-file export features
- Unique system ID
- Power
- USB or AC (RS232)
- **Range** ◆ 100 ft (30m)
- Size
- ◆ 7.0 ↔ 5.5 ↔ 2.5 ↔
 - 178mm x 140mm x 63.5mm





Starrett Data Collectio Systems - SPC PLUS

The SPC Plus[™] provides efficiency and flexibility to handle most all needs. The benefits from our systems are:

- Workpieces can be brought from a number of locations to a "stand alone" computer workstation in a central location
- ♦ A second choice is to use portable data collectors that can be brought to the work area
- Portable units can collect and analyze data in real time with the added advantage of recording the data and later transferring it to a computer for more detailed analysis
- Starrett SPC Plus systems accept a large number of inputs from a variety of electronic tools simultaneously
- The Starrett system can accommodate other manufacturers' tools using their regular cables
- Starrett collectors can be used with line power or as a portable unit with rechargeable batteries

772A and 772B Collectors

Handling Features

- Simple design they can be handled easily and used in a fixed or portable position
- Rugged, sealed construction allows use in shop floor environments
- The ability to enter information manually through the keypad
- Furnished with a neck strap

Gaging Capability

- The No. 772A collector has two gage • ports
- The No. 772B collector has eight gage ٠ ports
- The gage ports will handle modules for Starrett SPC Plus tools and also tools from other suppliers in any combination
- Will accept the standard cables of most major suppliers when using non-Starrett tools

Collector Systems

- Variable charting is programmable through the use of an optional program card
- Complete alphanumeric description of parts
- Interface with PCs
- Information such as X-Bar, R and S charts and histograms will show on the LCD display with optional program card



Enhanced Features and Benefits:

- Expanded math functions data can be processed through a formula for customized output readings
- Reads, calculates and displays to six decimal places
- Real-time operation automatic update and display of charts
- Password capability
- Traceability option has 4 fields available for easy documentation
- Assignable cause option allows explanation of out-of-control conditions
- Flashing LED provides visual backup to the audible signal

Operation

- Five function keys with on-screen description. Functions are: the ability to set SPC, the ability to collect the data, memory transfer, a systems setup such as date and time, and gage reset
- Scrolling is controlled by two keys and is easy to use
- Ten custom keys for one-stroke execution of your own prestored routines (stores up to 16 keystrokes)
- Runs on both line power and replaceable/rechargeable battery packs.
- Programmable automatic trigger for port selections and to activate the tool. This can be one port per trigger or several



- Automatic or manual foot switch triggering
- Automatic trigger timer for readings from one or more ports, with user-set interval











The No. 772A can simultaneously handle up to two gages, while the 772B can interface with up to eight.

No. 772 Series Standard System Components

Catalog No.	EDP No.	Description
772 A	65899	Basic Data Collector with 2 Module Ports and 1 Starrett Module No. PT61192 unless Otherwise Specified*
772B	65900	Data Collector with 8 Module Ports and 2 Starrett Modules No. PT61192 unless Otherwise Specified*

*See tool and module list at end of this section

No. 772 Series Collectors Furnished with:

Part No.	EDP No.	Description	
PT60636	63839	Power Supply Charger for USA and Canada Configuration — 115/120 Volts/60 Cycle	
PT60637	63840	Carrying Strap	
PT61492	65903	P.C.M.C.I.A. Data Storage Card	
		Custom Key Tab	
		Instruction Manual	

No. 772 Power Supply Options

PT99340	66455	Power Supply Charger for European Configuration — 100-240 VAC, 47-63Hz
PT99353	66456	Power Supply Charger for United Kingdom Configuration — 100-240 VAC, 47-63Hz

No. 772 Series Input Options

PT99468	57092	Foot Switch
PT61133	65045	Pendant Switch

No. 772 Series Output Options

PT99523	65906	Link 72 Cable and Software for Downloading to Computer
PT60643	63843	Cable to Printer or Computer (9-Pin to 25-Pin) Serial Connection
PT60642	72499	Cable to Computer (9-Pin to 9-Pin)
PT61682	66305	Variable Program Card for SPC Analysis
739	64955	SPC Charting and Computer Interface Program
PT61681	66308	Battery Charger for No. 772
PT61576	66309	Battery for No. 772

Data Collection Software and Software Wedge Computer Link (Link 72 Software) This fully customizable serial 1/0 program allows you to input real-time data from Starrett gages This software package provides the ability to communicate between the and data collectors directly into Starrett Nos. 761 and 772 systems and a PC spreadsheet and database program It will display the No. 772 output data on a PC screen The No. 772 can be controlled directly from a PC keyboard It is easy to install and use and • It can transmit No. 772 output to a parallel printer or to a includes set-up examples for computer disk for further processing Starrett gages and on-line help. ◆ It consists of a 3 1/2 disk, a cable, 9-pin female connectors on Catalog No. 719 / EDP 66490 both ends and an instruction manual **Win**Wedge No. PT99523 / EDP 65906



Data Multiplexer

No. 761 Series

The No. 761 Multiplexer is the computer gage interface for all Starrett as well as most other major electronic tools and measuring equipment. It is designed to work with PCs.

- Instant 'plug and work' interface to Starrett No. 739 SPC Plus II software and No. 728-3 Shop Floor Pro™ Software.
- Includes Starrett Link 72
- Works with other major software
- Supplied with 4 Starrett Tool Modules.
- Will accept other brands of tools using their standard cables with modules available from Starrett.
- Accepts information from both analog and digital tools
- Can be expanded to handle 8 gages by adding No. 761B Expansion Unit
- AC powered

Easy-to-Use Features Include:

- Foot switch connectors as well as individual send buttons and indicator lights for each module port
- Controlled through easy to use software commands or simple dip-switch settings on the back of the unit.
- Housed in a rugged shop tough case with an easy-to-read faceplate



Tools linked to computer via Nos. 761A and 761B Multiplexers.

Computer Interface Adaptoffor Direct Connection from Tool to Computer)

PT61768 /EDP No. 664

This affordable, Windows ®-compatible adaptor interfaces Starrett Electronic Measuring Tools* to computers and peripherals which use an RS232C input. It allows fast and easy communication with IBM PCs and compatibles. Installation requires No. PT22938 cable.



Left: PT61768 Coumputer Interface Adaptor.

Cable and Adaptor Single Piece PT61963 /EDP No. 66636

Right, PT61963 Single-Piece Cable and Adaptor



Starrett

No. 761 Standard Components

Catalog No.	EDP No.	Description		
761A	65854	No. 761A Multiplexer Base Unit with 4 Starrett Modules * Installed, Power Supply, Link 72 Software Disks, and PT60642 Cable (9-Pin to 9-Pin)		
761B	65855	No. 761B Multiplexer Expansion Unit with 4 Module Ports (No Modules are Supplied*), Complete with Cable to Attach to No. 761A Base Unit		

*See tool and module list at end of this section. No. 761 Accessories

Cat./Part No	. EDP No.	Description
PT60636	63839	Power Supply Charger for USA and Canadian Configuration – 115/120 Volts/60 Cycle
PT99340	66455	Power Supply Charger for European Configuration – 100-240 VAC, 47-63Hz
PT99353	66456	Power Supply Charger for United Kingdom Configuration – 100-240 VAC, 47-63Hz
PT99468	57092	Foot Switch
PT61133	65045	Pendant Switch





SPC IV Excel Software No. 771 / EDP 67434

This Microsoft[®] Excel add-on is a fast, easy and affordable way to construct an SPC chart from your Excel data with complete control over analysis and charting options. After a chart has been embedded onto a spreadsheet, you can right-click on the chart and select "Amend chart" to change a setting without having to regenerate the entire chart.

SPC IV Excel correctly handles normally or non-normally distributed data with statistics shown directly on the chart and Advanced Statistics (subgroup stats) shown below the chart on the spreadsheet. The product includes context sensitive help.

- Supported Chart Types ◆ Individual-X and
- Moving Range Chart
 X-Bar and Range Chart
- X-Bar and Range Chart
 X-Bar and Sigma Chart
- X-Bar and Sigma Char
 Scatter Diagram
- Scaller
 Pareto
- Process Capability
- Attribute Charts (NP, C, P, U)
- Altibule Gharts (NF, 6, F, 6
 Box and Whiskers
- Bull's-eye Chart



Shop Floor Pro[™] Software provides powerful data acquisition and analysis features in an intuitive, simple-to-use interface.

- Economical, easy to learn real-time data collection and control charting software package
- Operates in a stand-alone or networked environment
- Allows for data entry directly from gages or through the keyboard
- Automatically leads your operators through the data collection process
- Pre-defined Work Sets can be created for Work Centers, part numbers, etc.
 Each Work Set opens in a single step and supports up to 20 control charts.
- Control charts can show different characteristics for the same part or characteristics from multiple parts
- Chart Types include X-Bar/Range, X-Bar Sigma, Individual-X/Moving Range and Run Charts. User definable subgroup sizes range from 1-20.
- Each chart page displays a control chart with an optional Histogram and Summary Statistics window.
- Summary Statistics can be configured to suit your specific requirements
- Control Limits can be based on the plotted data or user defined
- Choose Normal Distribution or a Johnson Distribution to define the Individual-X control limits, as well as the curve displayed in the Histogram and the Process Capability Indices calculations

- Supports real time data entry via gages connected to a PC through a multiplexer
- Easy-to-understand data form provides for convenient manual data entry
- The data value box displays the data as user-defined specifications
- As each data value is entered, it is automatically marked with date, time, user and gage identification.
- Auto Advance automatically moves the data form to the next page or characteristic after entry is completed
- ODBC compliant database can be accessed by multiple workstations or other applications with ODBC query
- Change term names to those meaningful to your application
- Attribute analysis
- Password protection
- Ability to define privilege levels for 23 functions, allowing the administrator to control access to nearly all functions within the software
- Copy multiple characteristics from one process to another, saving setup time
- Foot switch sequencing for Starrett No. 761 Multiplexers
- Edit data including audit trails
- Toolbars for most common functions
- Analysis feature tracks out-of-control conditions
- "Explorer View" allows "drag-and-drop" copying from one part to another
- Larger users have the ability to use Microsoft SQL as the database platform
- Available charts: Scatter, Pareto, Attributes, Box and Whiskers, Bar and Pie





Above: Working Screen. Below: Easy Part Characteristic Setup. Bottom: "Explorer View".









SPC Plus II Softwareb. 739 / EDP 64955

SPC-PLUS□ II is our desktop Statistical Process Control (SPC) Software Package. It provides many statistical process control features for an affordable price.

User Features

- Data can be accessed in a variety of ways
- Read directly from Excel Files. This allows you to take data previously recorded and immediately begin to analyze with control charts
- Gages. A wide variety of gages can be used to add data directly to the spreadsheet using our Real-Time Gage
- Module. Data goes in automatically!
- ♦ ODBC import. Any database that supports Microsoft's ODBC can easily be accessed. Data stored in Access or other database programs can be retrieved in seconds
- Data is entered directly into SPC-PLUS II's spreadsheet. Our spreadsheet contains many functions for calculating user-defined parameters

Superior Data Reporting with SPC-PLUS II

- You can print completed charts as jpeg images to be linked from your web pages
- You can effortlessly embed charts in word processing files (like MS Word) so reports to vendors, customers and associates contain all the information they need
- Annotation of charts allows you to assign causes, allowing identification for improvement opportunities
- Foreign Language Supported include: Spanish, French, German, Portugese, Italian, Swedish and Finnish

Supported SPC Chart Types/Features:

- Run? Chart
- Individual-X Chart
- XBar and Range Chart
- XBar and Sigma Chart
- Scatter Diagram (Regression)
- Pareto Charts
- Process Capability
- ♦ Histogram
- Autocorrelation? Function
- ♦ Attribute Charts: NP Chart, C? Chart, U Chart, P Chart
- Moving Average and Range Chart
- ◆ Moving Average and Sigma? Chart</



Histogram Screen.



hove: X-Bar/R-Bar. Below: Short Run Capability.







Cable and Module List for Starrett Tools that Connect to Starrett 761 Multiplexers and 772 Data Collectors

	Cable		Module	Module		
Tools	Part No.	EDP No.	Part No.	EDP No.	Description	
714 Interchangeable Anvil Micrometer						
733 Micrometer						
749 Depth Micrometer						
751 Height Gage						
753 Depth Gage						
756 Disc Micrometer	PT22938	64059	PT61192	65444	Starrett #3	
760 Screw Thread Micrometer						
762 Micrometer Head						
764 Sheet Metal Micrometer						
769 Tube Micrometer						
777 Bench Micrometer						
781 Bore Gage	PT61340	65648	PT61285	65647	Starrett #4	
786 Blade Micrometer	PT22938	64059	PT61192	65444	Starrett #3	
788 Round Anvil Micrometer	F122930					
789 Bore Gage	PT61489	65904	PT61490	65905	Starrett #5	
790 Multi Anvil Micrometer	PT22938	64059	PT61192	65444	Starrett #3	
797 Caliper	PT61340	65648	PT61285	65647	Starrett #4	
2000 Altissimo Height Gage	PT62103	67019				
2001 Altissimo "Platinum" Height Gage	F 102105	0/019	PT61192	65444	Starrett #3	
2600 Series Indicator	PT22938	64059				
2700 Series Indicator	PT61489	65904	PT61490	65905	Starrett #5	
3752 Height Gage	PT62103	67019	PT61192	65444	Starrett #3	
RS232C (Selectable) 9600, 4800, 2400 or 1200 Baud			PT61924	66661	Includes Cable for Nos. 761 and 772	





Tool List for Cables that Connect Starrett Tools Directly to a PC

Cable					
Part No. EDP No.		Starrett Tool Numbers			
РТ61963	66636	714 733 749 751 753 756	760 762 764 769 773 777	786 788 790 2600-1 2600-4 2600-8	
PT62425	67658	2000	2001	3752	
PT62606	68822	797B			

Cables and Modules for Other Manufacturers' Electronic Tools, for Use with Starrett 761 Multiplexers and 772 Data Collectors

	Cable	Module		
Tools	Part No.	Starrett No.	EDP No.	Description
Brown & Sharpe 599-1033 Indicator	B&S 595-G-0196B	PT60672	63849	B&S
Chicago Dial Indicator "Logic" Series	PT61489	PT61490	65905	Starrett #5
Federal Maxum Indicator	PT61528	PT60674	63851	Federal Max
Federal Micro-Maxum Indicator	PT61836	PT60674	63851	Federal Micro-Maxum
Mitutoyo	MTI Cables	PT60668	63846	MTI

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J.W. Donchin Co. was established in 1924 and has been known world wide ever since. Customer Service is our Main Focus. We offer **Expert Product Knowledge, Large Stocking Inventory and Competitive Pricing** to assist you in locating and selecting the correct tool or product to fit your needs. (J.W. Donchin Co. is one of L.S. Starrett's largest stocking distributors.)

Contact Information:

Phone: 773-261-2182

Fax: 773-261-2867

Email: sales@jwdonchin.com

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- Mitutoyo
- Fowler
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