



DATA COLLECTION SYSTEMS

DataSure®

WIRELESS DATA COLLECTION

100% DATA COLLECTION: ERROR-FREE AND FAST

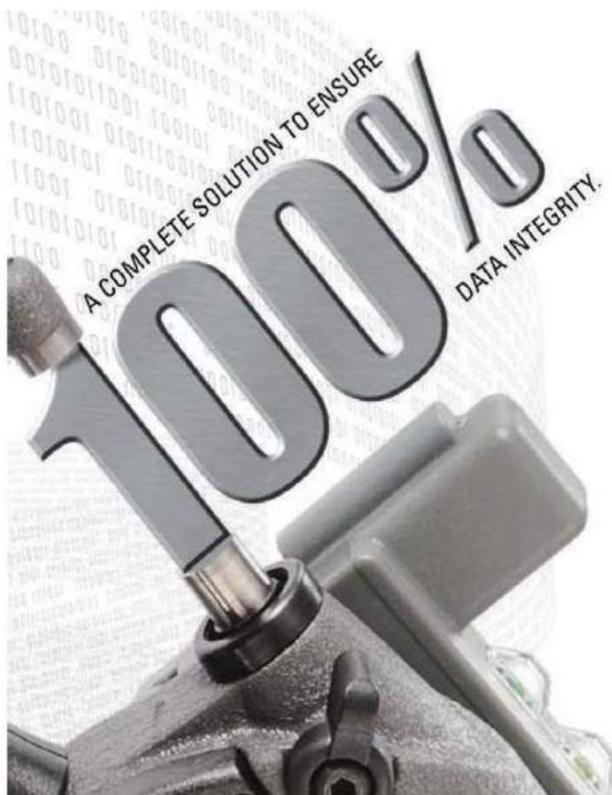
The DataSure Wireless Data Collection System allows real-time, 100% error-free data collection. From simple installations to systems covering thousands of square feet, data can be collected and analyzed much faster than with manual inspection and data entry.

With manual inspection data collection, the repetitive hand movements required to pick up tools, measure parts, put tools down, and then record results is time consuming. Furthermore, hand writing or keying in data leads to mistakes that result in scrap, excess inventory, and even rejected parts.

With DataSure, just measure and send for fast and error-free data.

DataSure also eliminates problems associated with data cables including placement, installation, safety and high cost. DataSure makes it easy to bring a precision measuring tool to the work, rather bringing the work to the tool.

DataSure is a full shop wireless solution. It works not only with Starrett tools, but also Mitutoyo, Sylvac, CDI Tools, Mahr, Tesa and other brands.



DATA SURE FACTS

DataSure wireless data collection systems consist of three primary components:

- Miniature radios (End Nodes) attached to the data output port of an electronic tool
- A Gateway that connects to a PC
- Routers to extend the system's range and make the network more robust

^ COMPREHENSIVE, ROBUST SOLUTION

- Works in almost any environment
- Maintains data integrity in electrically noisy shops
- Data receipt confirmation signal
- DataSure stores several readings
- DataSure adapts to all major electronic measuring tools
- "IT" friendly and easily installs on a standard PC

A wide variety of End Nodes are available, allowing DataSure to interface with electronic measuring tools from virtually all major manufacturers



226

Starrett®



DataSure® WIRELESS DATA COLLECTION

DATASURE TECHNICAL OVERVIEW

- 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, Mahr, Mitutoyo, Sylvac, CDI tools, and many other gages with output
- One DataSure Gateway can handle up to 100 tools, with 25 to 40 tools in a typical installation
- Each radio's range is approximately 65 feet (20 meters). Adding Routers can increase range in 100 foot increments.
- 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
- The multi-mode function allows one tool to be connected to a Gateway for simple installations, or up to 20 multiplexers and 100 tools for complex shop environments
- Rechargeable routers are ideal for mobile applications and large-component data collection environments such as aircraft assembly hangars, large casting foundries, and auto body stamping facilities
- Easy-to-use included software offers user configurable names for tools and groups
- DataSure's flexibility means it can output data directly to the main application screen, your SPC software, a local or networked database, and CSV file format
- IP67 rating
- Remote client access from another PC on your LAN

IP PROTECTION

An IP number is composed of two numbers, the first referring to protection against solid objects and the second against liquids.

First number 6: Totally protected against dust

Second number 7: Protection against submersion in water under standardized conditions of pressure for 30 minutes



DATASURE HARDWARE

DataSure starts with superior engineering, state-of-the-art technology and rugged durability. End Nodes, Routers and Gateways are built to perform reliably in almost any environment. Sturdy construction and heavy duty materials help them withstand the rigors of everyday use under demanding conditions.

Try out the DataSure Cost Calculator, and find application profiles, white papers, FAQ's and more at STARRETT.COM/DATASURE



Check out our website for interactive features at starrett.com



DataSure®

WIRELESS DATA COLLECTION

END NODE

The DataSure End Node plugs directly into digital tools. It sends measurement data and verifies receipt at the Gateway with a green light. The smaller 2nd Generation End Node has IP67 dust and water protection.

END NODE FEATURES

- User feedback LEDs
- On-tool data storage
- Adapts to most tools
- IP67 protection
- Power: CR2450 lithium
- **Range:** 65 ft. (20m)
- **Size:** 2.2" x 2.0" x 0.49"
(55.3mm x 43.2mm x 17.8mm)



ROUTER

Each DataSure Router extends the system's range in increments of 100 feet (30 meters). They ensure system robustness by providing alternate signal paths in noisy environments.

ROUTER FEATURES

- Range extender
- Transmits around interference
- Wall mount or mobile
- **Power:** AC, NiMH
- **Range:** 100 ft. (30m)
- **Size:** 7.0" x 5.5" x 2.5"
(178mm x 140mm x 63.5mm)



GATEWAY

The DataSure Gateway is the central point for data collection and tool management and plugs directly into a PC through a USB port.

GATEWAY FEATURES

- USB
- Sends data to application or database
- Multi-file export features
- Unique system ID
- **Power:** USB
- **Range:** 100 ft.. (30m)
- **Size:** 7.0" x 5.5" x 2.5"
(178mm x 140mm x 63.5mm)



SINGLE PIECE RS232 CABLE AND ADAPTOR

Single-piece cable with adaptor allows attachment to an RS232 9-pin port.

Direct PC Connection Cables		
Part No.	EDP	For Use with Starrett Tool Numbers
PT61963	66636	714, 760, 786, 733, 762, 788, 749, 764, 790, 751, 769, 2600-1, 753, 773, 2600-4, 756, 777, 2600-8, 3752
PT62425	67658	2000, 2001
PT62606	68822	797B, 5000, 5001, 5002, 5003, 5004, 5005, 5006, 781
PT26441	65893	2700 USB Connection



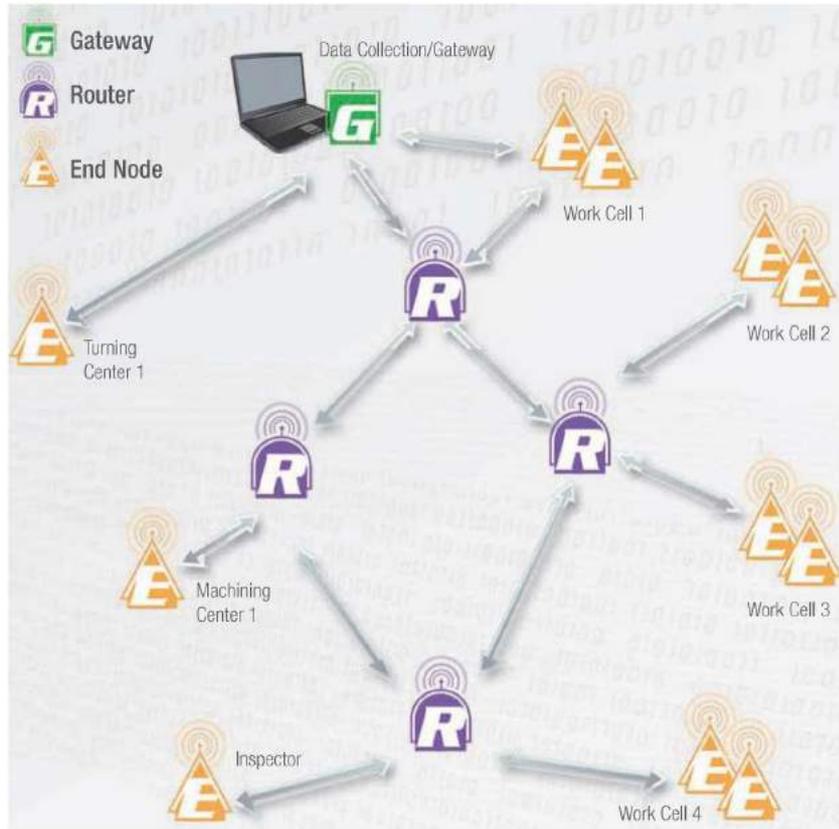
DataSure®

WIRELESS DATA COLLECTION

DATA SURE SHOP-FLOOR

The illustration (right) demonstrates how a large, multi-workstation shop might be networked with DataSure.

Tools at various locations collect data. The End Nodes send data to the nearest Router, and then to the Gateway, or directly to the Gateway if that is the best path. The Gateway sends a signal back through the same path to the End Node to confirm receipt of the data.



DATA COLLECTION SYSTEMS



Check out our website for interactive features at starrett.com

229

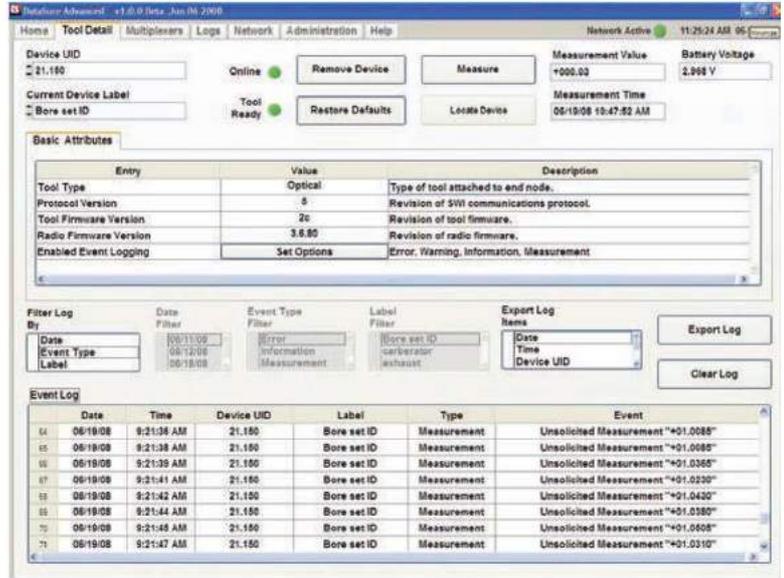


DataSure® WIRELESS DATA COLLECTION

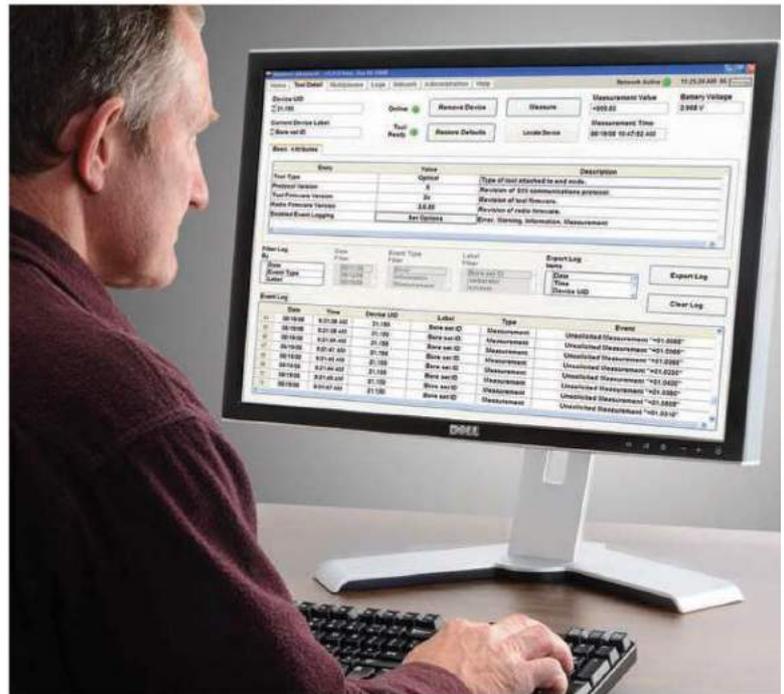
DATA SURE SOFTWARE

DataSure Advanced 2nd Generation Wireless Data Collection Manager software connects and manages your tools, network, data and third party SPC 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 CSV format
- Data is stored on a local or network database with programmable, scheduled backup
- Remote personnel can configure tools, export data and monitor activity via intranet with no additional software
- Virtual multiplexers allow data to be directed from specific tools to multiple software applications
- Each radio end node can be personalized with a descriptive name
- Drag and Drop tools on multiplexers
- Fast and easy label changes for tools
- Fast response for measurement
- System OS Requirements: Windows® 2000, XP Home and Pro with SP2, SP3, Vista SP1, Vista SP2, Windows® 7 32 bit, Windows® 7 64 bit
- Data can also connect directly to your SPC application via com port or DDE (Dynamic Data Exchange) link



Above: DataSure Advanced Wireless Data Collection Manager Software provides a powerful, intuitive interface and works well with many popular SPC applications.



DataSure®

WIRELESS DATA COLLECTION

ADDING DATA SURE TO YOUR FACILITY

To add DataSure to your facility, simply contact us or use our online system calculator. We will work with you to specify a system for your application.

We will add new End Nodes and Output Connectors to those listed below as needed. Please call to discuss your requirements.

Note that new End Nodes or Routers for a current system must be made to match the Group Number of your existing components.

719 SOFTWARE WEDGE™

EDP 66490

This configurable serial I/O software allows you to input real-time data from Starrett gages and data collectors directly into spreadsheets and databases.



DataSure Gateway, Router, End Nodes, Connectors & Accessories		
Cat. No.	EDP	Description
1500-1-UN	12051	Gateway, USB, 917MHz
1500-2-N	12059	Router, 916MHz, 120/240 VAC
1500-3A-1N	12530	End Node, Starrett Opto
1500-3A-2N	12531	End Node, Starrett IP67 Micrometer
1500-3A-3N	12532	End Node, Starrett 3rd Gen.
1500-3A-4N	12533	End Node, Starrett 2700 Indicators
1500-3A-5N	12534	End Node, Starrett Cat. No. 2000
1500-3A-6N	12535	End Node, Mitutoyo 6-Pin
1500-3A-7N	12536	End Node, Mitutoyo w/o absolute encoder
1500-3A-8N	12537	End Node, RS232, Jumpered Port Pins
1500-3A-9N	12538	End Node, Mitutoyo IP66 Micrometer
1500-3A-10N	12539	End Node, Mitutoyo IP65 Micrometer
1500-3A-11N	12540	End Node, Marposs E4N
1500-3A-12N	12541	End Node, Universal 10-pin connector
1500-3A-13N	12542	End Node, Absolute Digimatic Indicator
1500-3A-14N	12543	End Node, Mahr-Federal with µMaxum and XL
1500-3A-15N	12544	End Node, Opto/Duplex
1500-3A-16N	12545	End Node, Mahr-Federal EX
1500-3A-18N	12565	End Node, Starrett 798 Calipers
1500-3A-20N	69854	End Node, TESA Microhite
1500-3A-21N	00046	End Node, Starrett 2900
PT62785-0	12188	Mushroom head fastener kit to attach end nodes to tool (Two pair included with each end node)
PT62742	62024	Gateway or Router Mounting Bracket
PT63297-1N	12546	Replacement Output Connector, Starrett Opto
PT63298-2N	12547	Replacement Output Connector, Starrett IP67 Mic
PT63299-3N	12548	Replacement Output Connector, Starrett 3rd Gen.
PT63300-4N	12549	Replacement Output Connector, Starrett 2700 Ind
PT63301-5N	12550	Replacement Output Connector, Starrett 2000/2001/3752
PT63302-6N	12551	Replacement Output Connector, Mitutoyo 6-Pin
PT63303-7N	12552	Replacement Output Connector, Mitutoyo W/O Absolute
PT63304-8N	12553	Replacement Output Connector, RS-232
PT63305-9N	12554	Replacement Output Connector, Mitutoyo IP66 Mic
PT63306-10N	12555	Replacement Output Connector, Mitutoyo IP65 Mic
PT63307-11N	12556	Replacement Output Connector, Digimatic W/D-Sub 9 Pin
PT63308-12N	12557	Replacement Output Connector, Universal Mitutoyo 10 Pin
PT63309-13N	12558	Replacement Output Connector, Absolute Digimatic
PT63310-14N	12559	Replacement Output Connector, Mahr Federal Umaxum Indicator
PT63311-15N	12560	Replacement Output Connector, Opto/Duplex
PT63312-16N	12561	Replacement Output Connector, Mahr Federal Ex
PT63389-18N	12562	Replacement Output Connector, Starrett 798 Calipers



Check out our website for interactive features at starrett.com



DataSure®

WIRELESS DATA COLLECTION

A DATA SURE THROUGHPUT AND ACCURACY STUDY

In a controlled, 100% inspection test to measure the impact of DataSure on throughput and quality assurance, we made three measurements per part and recorded the data on 500 parts.

Methods 1 and 2 involve time-consuming hand movements to pickup and put down the tool in order to record data. Measurement with DataSure is fast and direct. The slowest method (#1) required 29 second per part with many errors. With DataSure the same task was nearly 5 times faster – with no errors.

METHOD 1: MEASURE, HANDWRITE RESULTS, REMOTE DATA ENTRY

- 37 time/motion elements, 28.9 sec./part
- 62 entry errors

Factors affecting accuracy and throughput:

- Measurement must stop to handwrite results.
- Illegible handwritten numbers, mistakes noted but not corrected, data written in shorthand and inspector's handwriting misread by the transcriber
- Value can change when the inspector releases the caliper
- Data entry errors at the PC

METHOD 2: MEASURE AND ENTER RESULTS TO PC

- 20 time/motion elements: 15.3 sec./part
- 4 data entry errors

Factors affecting accuracy and throughput:

- Alternating measuring and data entry caused errors
- Calliper not seated correctly when released to key-in data
- Missed data entry, incorrect keystrokes, entry to wrong cell

METHOD 3: MEASURE AND ENTER RESULTS DIRECTLY WITH DATA SURE

- 17 time/motion elements: 6.6 sec./part
- 0 entry errors

Factors affecting accuracy and throughput:

- Measurement technique is maintained
- No interpretation or memory errors
- Immediate, direct data entry eliminates errors



GAGE MULTIPLEXERS

7612 AND 7613 4-PORT GAGEMUX USB



FAST, SIMPLE AND FLEXIBLE

Starrett 4-port gage multiplexers make it fast and easy to connect multiple gages to a PC. Interface is through USB and USB keyboard outputs, as well RS232 ports.

With the 7612 GageMux, no software wedge or other intermediary software is required. The PC "sees" the connection from the 7612 as a keyboard. Simply, open any document on your computer that accepts input, position your cursor, then send the data from the tool. That data will be input at the cursor location.

The 7613 GageMux USB 4-port gage is similar to the 7612 except that it does not have the keyboard function. It requires the Starrett 719 Software Wedge or a similar product to input data into the PC.

From manufacturing methods and materials to a built-in, power-saving mode, the GageMux was designed to be an environmentally friendly product.

7612 and 7613 GageMux, Cables and Accessories		
Cat. No.	EDP	Description
7612	69886	GageMux 4 port, USB, RS232 and keyboard output; Includes USB cable and 110V AC power supply
7613	69885	GageMux 4 port, USB and RS232 includes USB cable and 110V AC power supply
7612 and 7613 GageMux Cables		
795SCM	69892	Connect 795 Micrometer
733SCM	69893	Connect 733 Micrometer and 2600 Indicator
798SCM	69894	Connect 798 Caliper
797SCM	69895	Connect 797 Caliper
2700SCM	69896	Connect 2700 Indicators
2900SCM	68751	Connect 2900 Indicators
7612 and 7613 GageMux Accessories		
7612FTS	69905	Industrial Foot Switch with 6' cable
7612PS	69899	220/50 External Power Supply
719	66490	Software Wedge allows direct input to PC (7613 only)

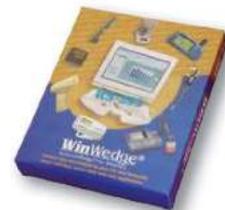
FEATURES AND SPECIFICATIONS

- 4 input ports
- Simple set-up, your PC automatically installs USB driver when GageMux is plugged into PC's USB port – does not require software configuration
- Supports USB 2.0, RS232 and keyboard output
- Operating modes: Static (Normal) mode operation or Dynamic (MIN/MAX/TIR)
- Footswitch input, LED status light on each input, host command operation and set up



719 SOFTWARE WEDGE™ FOR 7613 ONLY)

This configurable serial I/O software allows real-time data input from Starrett gages through the 7613 GageMux directly into spreadsheets and databases.



Check out our website for interactive features at starrett.com



SMARTCABLES™

SMARTCABLES

EASY TOOL-TO-PC CONNECTION AND DATA TRANSFER



SmartCable makes it fast and easy to connect a measuring tool to a PC. The interface provides the ability to connect through USB and USB keyboard outputs.

With the SmartCable keyboard output, no software wedge or other intermediary software is required. The PC "sees" the connection from the SmartCable™ as a keyboard. Simply, open any document on your computer that accepts input, position your cursor, then send the data from the tool. That data will be input at the cursor location.

Also available are the 795SCU and 733SKU which provide USB output for 795 Micrometers and 733 Micrometers and 2600 Indicators, respectively. They do not have the keyboard function and require 719 Software Wedge or a similar product to input the data to the PC.

From manufacturing methods and materials to a built-in, power-saving mode, the SmartCable was designed to be an environmentally friendly product.

FEATURES AND SPECIFICATIONS

- Simple Set-up, your PC automatically installs USB driver when the SmartCable is plugged into PC's USB port
- Supports USB 2.0, RS232 and Keyboard (optional) output
- Simple plug and play set up – doesn't require software configuration
- Operating modes: Static (Normal) mode operation or Dynamic (MIN/MAX/TIR)
- LED status light

719 SOFTWARE WEDGE™ (FOR SCU CABLES)

This configurable serial I/O software allows you to input real-time data from Starrett gages through 795SCU and 733SKU cables directly into spreadsheets and databases on a PC.



Smart Cable Products		
Cat. No.	EDP	Description
795SCKB	69887	SmartCable with USB Keyboard Output for 795 Micrometer
733SCKB	69888	SmartCable with USB Keyboard Output for 733 Micrometer and 2600 indicator type output
798SCKB	69889	SmartCable with USB Keyboard Output for 798 Caliper
797SCKB	69890	SmartCable with USB Keyboard Output for 797 Caliper
2700SCKB	69891	SmartCable with USB Keyboard Output for 2700 Indicators
795SCU	69897	SmartCable USB Duput for 795 Micrometer
733SCU	69898	SmartCable USB Duput for 733 Micrometer and 2600 indicator type output
2900SCKB	68839	SmartCable with USB Keyboard Output for 2900 Indicators
719	66490	Software Wedge allows direct input to PC (795SCU and 733SCU only)

Direct PC Connection Cables		
Part No.	EDP	For Use with Starrett Tool Numbers
PT61963	66636	714, 760, 786, 733, 762, 788, 749, 764, 790, 751, 769, 2600-1, 753, 773, 2600-4, 756, 777, 2600-8, 3752
PT62425	67658	2000, 2001
PT62606	68822	797B, 5000, 5001, 5002, 5003, 5004, 5005, 5006, 781
PT63329	12732	798, USB Connection
PT26441	65893	2700 USB Connection

