

# Integrated Error-Proofing Systems

S/R Controllers &  
Communicating  
Torque Tools



## Assemble your products without error.



**Sturtevant  
Richmont®**  
Torque Measurement Systems



## Error-Proofing Increases Profit. Integrated Error-Proofing Increases It Greatly.

Of all the quality techniques developed in the last half century, error-proofing is one of the most effective.

Designing assembly processes to reduce the possibility of error occurring has a direct and measurable effect on nonconformance costs. Properly designed, implemented and integrated, error-proofing systems reduce costs significantly and rapidly, resulting in a high return on investment.

S/R has led the industry in error-proofing torque application for over a decade. From purely mechanical Switch Wrenches to our newest multi-tool Ethernet-capable controllers, we have set the bar in error-proofing torque application.

The systems presented here span many levels of control and integration. If you assemble products with threaded fasteners, you will find one or more that meets your needs and integrates with your current - and likely future - systems.

## 1100-Series Exacta® Digital Torque Wrenches



The 1100-Series **Exacta**® torque wrench incorporates virtually everything you could ask for into a single, easily programmed and user-friendly package!

### Features:

- +/- 1% Indicated Value Accuracy from 20% to 100% of capacity in both CW and CCW directions.
- Peak and Residual Torque modes, selectable.
- Large high-contrast LCD displays Mode, Unit of Measure, Target Torque Value, OK/BAD, Current Torque Value, and stored torque values.
- Yellow/Green/Red color scheme on LCD turns Yellow when user specification is being approached, Green when the specified torque is being applied, and Red if the maximum specification is exceeded. Just pull to Green!
- LED lens on back of tool displays color scheme so it is visible even in applications where the LCD is not!
- Uses 2.4 GHz RF communications (OUR-XBEE/OUR-XBEE Pro radio transceiver) for reliable communication and long battery life.
- Models of 150 ft. lb. capacity and below use the S/R Dovetail system and can be used with 100+ S/R Interchangeable Heads!
- Aluminum electronics module is incredibly tough and durable.
- Compatible with the Global 8, Global 8-Ethernet, RFE-Ethernet and RFE.
- Meets or exceeds requirements of ASME B107.28 and ISO 6789.
- Includes free certification from our ISO/IEC 17025 Accredited Calibration Laboratory!
- Serial communication port for ease in calibration.



## 2.4 GHz Wireless Clicker-Type Preset Torque Wrenches

The SLTC-FM 2.4 GHz family of tools is based on the proven S/R lineup of preset torque wrenches. These solid performers are the backbone of error-proof torque application for many leading manufacturers!

- Accuracy of +/- 4% of preset value from 20% to 100% of capacity meets or exceeds requirements of ASME B107.14 and ISO 6789!
- Extremely strong and durable S/R dovetail system works with any of over 100 S/R Interchangeable Heads!
- Monitors time in the "clicked" position to provide an "OK/Bad"



tool use evaluation for every fastener it is used on.

- Too little time in clicked position = tool was "jerked" (Bad, torque likely out of specification high or low)
- Correct time in clicked position = tool was used properly (OK, torque to specified preset value)
- Too much time in clicked position = tool was pulled past the click (Bad, torque over specification)
- Provides immediate on-tool feedback to operator through LED (Green is Good!).

- Provides immediate radio communication of torque status to controller, which also displays result.
- Dovetail and flattened body provide excellent fastener access in constrained-access applications!
- Tamper-resistant design discourages unauthorized torque setting changes.
- Light weight tool and new Cushion Grip for superior ergonomics!
- Excellent audible and tactile impulse when preset torque is achieved!

*Note: 900 MHz version available in U.S.A.*

## PST 1000 Pressure Sensor/Transceiver

The innovative PST 1000 monitors your air tool performance, evaluates it against specifications stored on board, and provides immediate feedback to the operator and the Global 8 or Global 8-Ethernet. Your air tools and your hand tools can be integrated without purchasing and operating a second controller!

The PST 1000 works with ported auto-shutoff tools to create a profile of the air pressure over time during rundown and shutoff. The profile for a known conforming rundown and tightening is stored on the PST 1000, and all the subsequent uses are compared to the profile. Conforming tightenings result in: immediate feedback to the operator via an LED on the PST 1000, transmission to the Global 8, and confirmation on the display and LED's on the Global 8 unit!

- Works with ported automatic shutoff pneumatic tools, including clutch and pulse types.
- Works with your Global 8 or Global 8-Ethernet to convert a known "good" tightening into specifications, then compares subsequent tightenings of that joint to the specifications.
- LED provides immediate feedback on the PST of the "OK/BAD" attribute status to the operator for each use of the tool.
- Provides immediate radio communication of the status and data to the Global 8 for display, tracking and I/O use.
- CE and RoHS compliant.
- Rechargeable 5200 mAh Lithium-ion battery for extended periods between chargings.



- Battery can be recharged 500+ times.
- Data from each tightening can be graphed and displayed on the Global 8's.

# Global 8

## Global 8-Ethernet

For the first time you can have a controller that works with up to eight PST 1000-equipped air tools, 1100-Series **Exacta**<sup>®</sup> and 2.4 GHZ SLTC-FM preset torque wrenches – in any combination! Better still, these controllers provide clear communication of tightening and process status to the operator and update your system information with every torque event!

Whether your line uses Ethernet communications, 24 VDC systems or both, there is a Global 8 controller that fits your needs!



Feature	Global 8-Ethernet	Global 8
Maximum number of torque tools controlled in any combination	8	8
Works with 1100-Series <b>Exacta</b> <sup>®</sup> Digital Torque Wrenches	Yes	Yes
Works with SLTC-FM 2.4 GHz Preset Torque Wrenches	Yes	Yes
Works with PST 1000 Pressure Sensor/Transceiver for auto-shutoff pneumatic tools	Yes	Yes
Accepts variable torque data	Yes	Yes
Accepts attribute torque data	Yes	Yes
Downloads specifications to tool	Yes	Yes
Provides internal task sequencing	Yes	Yes
Task sequencing changes accepted from external commands	Yes	Yes
Large front panel display shows current tool and current status of tightening	Yes	Yes
Soft-key programming on front panel	Yes	Yes
Large LED's for Cycle Accept, Cycle Reject & Batch Complete, augmented by Beeper with adjustable volume	Yes	Yes
2.4 GHz radio communication with tools at up to 50' (16m) distance (OUR X-BEE/OUR-XBEE Pro Transceiver)	Yes	Yes
USB connector for computer communications	Yes	Yes
14 character, 2 line Human-Machine Interface for Ethernet status	Yes	No
RJ-45 Network Connector	Yes	No
9 pin serial connectors for serial printer & bar code reader	Yes	No



# RFE-Ethernet

The RFE-Ethernet works with the 1100-Series **Exacta**® Digital Torque Wrench to provide variable and attribute torque data on every use, and immediate communication to the operator and line control system. Further, it is programmed to integrate immediately with your Ethernet communication system using the Atlas Copco® Open Protocol! For applications and systems calling for high accuracy, variable and/or attribute data and Ethernet communications, the RFE-Ethernet is the solution!

## Features:

- Works with the 1100-Series **Exacta**® Digital Torque Wrench.
- Integrates immediately and easily into Ethernet systems using the Atlas Copco® Open Protocol.
- Uses 2.4 GHz OUR X-BEE/OUR X-BEE Pro bi-directional communications for reliable bi-directional RF tool communications at distances up to 50 feet (16m).
- Includes Device Programmer software and 9 pin serial port to



- make initial programming and changes fast and easy!
- 24 VDC integration via a 4 pin I/O port and internal relays for Cycle Accept, Cycle Reject and Batch Accept. Common is provided with +24 VDC power from internal source.
- Operates on either 110-120 VAC or 220-240 VAC power.

- Human-Machine Interface (HMI) and 2 line, 14 character LCD screen for simple and efficient front panel programming.
- Serial bar code reader can be connected to 9 pin serial port; can provide commands or identification data for unit use.

# RFE

The RFE works with the 1100-Series **Exacta**® Digital Torque Wrench to provide variable and/or attribute data for those who need it but don't need Ethernet communication. Variable data can be output through the RJ-11 serial port, and 24 VDC I/O is available through internal relays and a 5 pin connector.

## Features:

- Uses OUR X-BEE/OUR X-BEE Pro 2.4 GHz RF communications to work with 1100-Series **Exacta**® digital torque wrench.
- Reliable RF tool communication at distances up to 50 feet (16m).
- Includes Device Programmer software for programming the unit and the **Exacta**® tool.



- Provides 24 VDC I/O communications through 5 pin port, with relays for Cycle Accept, Cycle Reject, Batch Accept and Reset.
- Operates on either 110-120 VAC or 220-240 VAC power.

## PTV-FM 2.4 GHz

When multiple clicker-type torque wrenches are used at a location on the line and RF communication of the status of the process is needed, the 2.4 GHz PTV is the reliable and cost-effective answer!

The PTV-FM 2.4 GHz offers multiple tool and batch options. Each unit can control up to four SLTC-FM 2.4 GHz Switch Wrenches and can support differing specifications and batch sizes on each. Immediate operator feedback for each cycle and count display for tracking batch progress make the operator's job easier. PLC communications are supported through an I/O port and 24 VDC relays.

### Features:

- Uses SLTC-FM 2.4 GHz Preset Switch Wrenches for accurate and repeatable torques and extremely high communication reliability.
- Immediately informs operator via lights and a buzzer of proper (Accept) or improper (Reject) wrench use.



- Notifies operator and line when batch is complete.
- Allows up to 99 fasteners per batch.
- Counts fasteners in batch in either direction (up or down).
- Cycle Accept, Cycle Reject, Batch Complete and Reset relays for use with line control system.
- Simple and straightforward front panel programming with security control.
- Each parameter set (group of specifications) can be used on any of up to four tools tied into the unit.
- Tool use sequencing can be controlled through the unit or via 24 VDC control system.
- Operates on either 110-120 VAC or 220-240 VAC power.

*Note: 900 MHz version available in U. S. A.*

## TCV-FM 2.4 GHz

The TCV-FM 2.4 GHz is ideal when the application calls for the accuracy and repeatability provided by the SLTC-FM 2.4 GHz preset torque wrenches, and only a single tool at the station needs to be controlled and batch counting can be performed by the PLC. This is the high-reliability, low-cost solution you have been looking for!

### Features:

- Uses SLTC-FM 2.4 GHz Preset Switch Wrenches for accurate and repeatable torques and extremely high communication reliability.
- Immediately informs operator via lights and a buzzer of proper (Accept) or improper (Reject) wrench use.



- 5 pin connector for use with 24 VDC I/O system.
- Cycle Accept, Cycle Reject and Reset relays keep line control system informed of status at all times.
- The tool use specifications are easily programmed with supplied software through the serial port.
- Operates on either 110-120 VAC or 220-240 VAC power.

*Note: 900 MHz version available in U. S. A.*



# TCV Ethernet

The TCV Ethernet extends the functionality of the TCV by incorporating Ethernet communications using the Atlas Copco® Open Protocol. Users who need data via Ethernet and 24 VDC I/O communications for their line have the product that suits their needs! The TCV Ethernet works with the accurate and reliable SLTC-FM 2.4 GHz Switch Wrenches to provide the accuracy and reliability you count on!

- Works with any of the SLTC-FM 2.4 GHz Switch Wrenches.
- Ethernet port and built-in compatibility with the Atlas Copco® Open Protocol!
- Uses OUR X-BEE/OUR X-BEE Pro 2.4 GHz communications for reliable bi-directional tool communications at distances up to 50 feet (16m)!
- Front panel LED's for Cycle Accept, Cycle Reject and Batch Complete for immediate operator feedback on each use of the tool.
- Simple front panel programming via keypad and 2 line, 14 character display.
- Password protection to prevent unauthorized changes.
- Operates on either 110-120 VAC or 220-240 VAC power.



# SLTC-Series Hardwired Preset Torque Wrenches

Our SLTC-Series is the ideal preset torque wrench for those who wish to design their own controls using hardwired tools and PLC's. These tools have the legendary accuracy and reliability built in to all S/R torque wrenches, augmented with a solid and durable mechanical switch system.



- +/- 4% Indicated Value Accuracy from 20% to 100% of capacity in the clockwise direction.
- Five models have the incredibly strong S/R Dovetail and can be used with any of over 100 S/R Interchangeable Heads!
- Tamper-resistant design discourages unauthorized torque setting changes.
- Meets or exceeds requirements of ASME B107.14 and ISO 6789!
- Light weight and new Cushion Grip for superior ergonomics!
- Excellent audible and tactile impulse when preset torque is achieved!

## Design Your Own System: Tool/Controller Compatibility Chart

	Global 8 Ethernet	Global 8	RFE Ethernet	RFE	TCV Ethernet	PTV-FM 2.4GHz	TCV-FM	PLC Direct
1100-Series Exacta®	X	X	X	X				
PST 1000	X	X						
SLTC-FM 2.4GHz Preset Clicker	X	X			X	X	X	
SLTC Preset Hardwire								X

Part No.	Model	Description
<b>Control and Communication Devices</b>		
10477	Global 8-Ethernet (ACOP)	Global 8 Controller with Ethernet card and Atlas Copco® Open Protocol
10476	Global 8-Ethernet (PFCS)	Global 8 Controller with Ethernet card and PFCS
10479	Global 8	Global 8 Controller
10470	RFE-Ethernet	RFE Controller with Ethernet card and Atlas Copco® Open Protocol
10471	RFE	RFE Controller
10466	PTV-FM 2.4	PTV Controller, 2.4 GHz
10469	TCV-Ethernet	TCV Controller with Ethernet card and Atlas Copco® Open Protocol
10467	TCV-FM 2.4	TCV Controller, 2.4 GHz

<b>Attribute and Variable Data Torque Tools</b>		
10478	PST 1000	PST 1000 Pressure Sensor/Transceiver for ported, auto-shutoff air tools
10581	1100 Exacta 25	25 ft.lb./33.8 Nm cap., 3/8" SD int. head inc., batteries not included**
10582	1100 Exacta 75	75 ft. lb./101.5 Nm cap., 3/8" SD int. head inc., batteries not included**
10583	1100 Exacta 150	150 ft. lb./203.3 Nm cap., 1/2" SD int. head inc., batteries not included**
10584	1100 Exacta 250	250 ft. lb./338.9 Nm cap., 1/2" ratcheting S. D., batteries not included**
10585	1100 Exacta 600	600 ft. lb./813 Nm cap., 3/4" ratcheting S. D., batteries not included**

<b>Switch Wrenches</b>		
810311	SLTC-2.4 FM 50I	FM Switch Wrench, 2.4 GHz, 50 in.lbs./6 Nm cap.
810312	SLTC-2.4 FM 150I	FM Switch Wrench, 2.4 GHz, 150 in.lbs./17 Nm cap.
810313	SLTC-2.4 FM 300I	FM Switch Wrench, 2.4 GHz, 300 in.lbs./34 Nm cap.
810310	SLTC-2.4 FM OHT	FM Switch Wrench, 2.4 GHz, 300 in.lbs./34 Nm cap., (Length same as 810312)
810314	SLTC-2.4 FM 750I	FM Switch Wrench, 2.4 GHz, 750 in.lbs./85 Nm cap.
810315	SLTC-2.4 FM 1800I	FM Switch Wrench, 2.4 GHz, 1800 in.lbs./204 Nm cap.
810305	SLTC-2.4 FM Ergo	FM Switch Wrench, 2.4 GHz, 1800 in.lbs./204 Nm cap., (6" longer than 810315)
810316	SLTCR-2.4 FM 3000I	FM Switch Wrench, 2.4 GHz, 3000 in.lbs./339 Nm cap., 1/2" ratcheting S.D.
810317	SLTC-2.4 FM 3600I	FM Switch Wrench, 2.4 GHz, 3600 in.lbs./408 Nm cap.
810318	SLTC-2.4 FM 4800I	FM Switch Wrench, 2.4 GHz, 4800 in.lbs./542 Nm cap.
810319	SLTCR-2.4 FM 7200I	FM Switch Wrench, 2.4 GHz, 7200 in.lbs./813 Nm cap., 3/4" ratcheting S.D.
810854	SLTC-150I	Switch Wrench, Hardwire, 150 in.lbs./17 Nm cap.
810855	SLTC-300I	Switch Wrench, Hardwire, 300 in.lbs./34 Nm cap.
810856	SLTC-750I	Switch Wrench, Hardwire, 750 in.lbs./85 Nm cap.
810857	SLTC-1800I	Switch Wrench, Hardwire, 1800 in.lbs./204 Nm cap.
810858	SLTC-3600I	Switch Wrench, Hardwire, 3600 in.lbs./408 Nm cap.
810859	SLTCS-7200I	Switch Wrench, Hardwire, 7200 in.lbs./813 Nm cap., 3/4" fixed S.D.
810860	SLTCR-7200I	Switch Wrench, Hardwire, 7200 in.lbs./813 Nm cap., 3/4" ratcheting S.D.

<b>Required or Supporting Products</b>		
21259**	Charger & 4 AA NiMH*	4-AA NiMH 2200 mAh batteries & charger, for 1100-Series Exacta®
21258	4 AA NiMH Batteries*	2500 mAh NiMH batteries, spare, for 1100-Series Exacta®
10474	Cable, Global 8, to bare	Cable for Global 8 24 VDC I/O system, Global 8 connector to bare wire
10440	Cable for SLTC	Cable, Switch Wrench, SLTC 150I only (required)
10421	Cable for SLTC	Cable, Switch Wrench, All other SLTC/SLTCS/SLTCR models. (required)

\*NAFTA Only. Go to web site for battery and charger information for other countries.



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